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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group:	3635
Confirmation No.:	4122
Application No.:	09/633,937
Invention:	PREFABRICATED WALL PANELING
Applicant:	Patrick Egan
Filed:	August 8, 2000
Attorney Docket:	38644-76657
Examiner:	Chi Q. Nguyen

Certificate Under 37 CFR 1.8(a)

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on February 1, 2005

(Signature)

John H. Allie
(Printed Name)

APPEAL BRIEF

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Sir:

This Appeal Brief is submitted in triplicate for the application identified above in support of the appeal of claims 24-56. The Commissioner is authorized to charge Deposit Account No. 10-0435 in $500.00 for the fee to file this Appeal Brief. Additionally, please charge any additional fees to Deposit Account No. 10-0435, but not to include payment of any issue fees.

REAL PARTY IN INTEREST

The real party in interest is Thermocore Structural Insulated Panel Systems, the assignee, pursuant to an assignment recorded in the records of the U. S. Patent and Trademark Office at reel 011191, beginning at frame 0302.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant that will directly affect or be directly affected by, or have a bearing on the Board's decision in the present appeal.

STATUS OF CLAIMS

Claims 1-23 have been canceled. Claims 24-56 have been rejected and are appealed. A copy of the appealed claims is attached hereto in a Claims Appendix.

For clarity, a brief summary of the prosecution history is provided as follows:

1. Application filed on August 8, 2000.
2. May 22, 2001 Non-Final Office Action rejected claims 1-23.
3. October 22, 2001 Amendment After First Office Action amended claims 1 and 19.
4. February 15, 2002 Final Office Action rejected claims 1-23.
5. March 13, 2002 Interview Summary states, "Examiner agreed with appliant's [sic] argument. Further consideration will be given after applicant send in the response."
6. March 13, 2002 Amendment After Final Action amended claims 1, 3, and 19 and canceled claim 2. Amendment reflects telephonic agreement reached with Examiner to place claims 1 and 19 in condition for allowance.
7. March 29, 2002 Advisory Action advised that amendment not entered.
8. April 18, 2002 Amendment After Final Action canceled claims 3-10.
9. May 20, 2002 Advisory Action advised that application not in condition for allowance but that amendment entered.
10. August 15, 2002 Request for Continued Examination with Preliminary Amendment canceling all pending claims and adding new claims 24-45.
11. November 8, 2002 Non-Final Office Action rejected claims 24-45.
12. February 25, 2003 Amendment After Interview amended claims 24 and 44.
13. May 16, 2003 Non-Final Office Action rejected claims 24-52.
14. September 16, 2003 Response to Office Action amended claim 44 and added new claims 53-56.
15. December 17, 2003 Non-Final Office Action rejected claims 24-56.
16. January 20, 2004 Interview Summary states, "With the examiner's supervisor advice, the last office action will not stand, and will waiting for the applicant's response for further search."

17. March 15, 2004 Response to Office Action requested reconsideration and noted that Examiner advised telephonically on January 20, 2004 that "the claim rejections in the prior Office Action of December 17, 2003 would not stand."
18. June 4, 2004 Non-Final Office Action rejected claims 24-56.
19. September 2, 2004 Notice of Appeal.

STATUS OF AMENDMENTS

No amendment has been filed subsequent to the most recent official action which is dated June 4, 2004.

SUMMARY OF INVENTION

Support for the following summary is provided in the application from page 4 to page 9.

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, and alterations and modifications in the illustrated device and method, and further applications of the principles of the invention as illustrated therein are herein contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring to the drawing figures, and in particular drawing figures 1-5, panel 21 according the present invention is provided. The panel has a first, exterior-facing sheet 23 of a generally rigid material, and further has a second, interior-facing sheet 25 of a generally rigid material. Sheets 23 and 25 preferably are made from a wood-based material, for example plywood or OSB board, the later being generally preferable. Such sheets each have a thickness, most preferably 7/16 inches thick, but ordinarily in the range of about half an inch in thickness. Such thickness is illustrated as thicknesses T_1 and T_2 in FIG. 1C. The sheets 23 and 25 are generally parallel to each other, being spaced apart by framing struts located between the sheets. There are typically at least two, and usually more framing struts per panel, these framing struts are illustrated in the drawings as struts 27a, 27b, 27c, 27d, 27e, 27f, 27g, 27h, 27i and 27j. The struts may follow the entire perimeter of sheets 23 and 25. Such framing struts preferably have a strut thickness T_3 (see FIG. 1C) of 3 3/16 inches in actual dimension, although they may be within about 1/4 inch, and preferably a 1/8 inch range, plus or minus, of that dimension (e.g., T_3 = 3 inches). Typically, the sheets 23 and 27 are secured to the framing struts by nails, screws or

other fastener. The spaces formed in-the panel volume line between sheets 23 and 24 and the framing struts. This volume, while initially air, is substantially filled with a polymeric in-situ foam core 29. Preferably, this foam cores is a rigid foam preferred in-situ, and preferably comprises polyurethane. It is understood that other foams having suitable insulation properties, and preferably rigid structural properties may be used, including other polymers as well as blends and/or copolymers with polyurethane. In practice, applicant has used BASF brand autofroth spray polyurethane including BASF 102B9453 resin and 9300A isocyannate blended together. This polyurethane foam expands in-situ in the panel volume, contacting the interior surfaces of sheets 23 and 25 as well as the framing struts, which are typically made of wood. When the foam cures, it adheres to such members, further integrating their strength and adding to the non-compressibility of the overall panel structure. Moreover, the foam servers to greatly enhance the thermal insulation characteristics. Applicant has found that with the inventive panel being 4 inches thick, the thermal insulation qualities are in excessive in an R value of 15, in excess of an R value of 20, and actually achieve an R value through the foamed panel of about 25.

Preferably the foam to make core 29 is injected into the panel volume after the first and second sheets are secured to the strut members. The strut members act as dams, either completely enclosing the panel volume, or alternatively partially enclose the panel volume. In the case of a partial enclosure, temporary dams are held in place to prevent the foam from oozing out until it cures. In either event, the foam is injected around the perimeter under pressure, typically in series, typically at injection openings in the struts approximately ever 4 feet around the entire perimeter. This is done while the panels are held in compression horizontally under a large press with medal beams so as to confine expansive deflection of the panel sheets.

The in-situ foaming is often done with electrical boxes, such as electrical box 31 and 35, and electrical conduit connecting such boxes, such as conduit 33 in place. Such electrical boxes and conduits are prefabricated into the panel mounted flush with interior sheet 25. Such mounting is done prior to injection of the in-situ foam. In this way, the in-situ foam surrounds such electrical boxes and conduits, further mechanically holding them in- place and providing thorough insulation around such parts. Electrical boxes are typically placed, like the other features of the present invention, as a function of a floor plan design predetermining the location of such features. The electrical conduit extends to a perimeter access 37 (see FIG. 1) whereby on the job site electricians can access such conduit to wire electrical boxes appropriately to wall outlets, light switches and the like.

As seen in FIG. l, one optional configuration of the present wall panel is to have a prefabricated window opening, such as window opening 39 in the panel. One or more such window openings can be made, and they may be made of any shape correspond to the window design for that part of the wall. As illustrated in FIG.1, window opening 39 is partially defined by framing struts 27a, 27b, 27c, and 27d. This provides a structural member in which to mount the window jambs. They also act as dams that contain the in-situ foam from leaking out into the window opening 39. The window opening is filled with a window 41 (see FIG. 7), typically provided from a window vendor. The window has window jambs 42 having a thickness T_5. Many off the shelf window jambs have a thickness T_5 of 4 9/16 inches as a standard dimension. With the present invention having an overall panel thickness of approximately 4 inches (plus or minus a quarter inch), and more preferably 4 1/16 inches in the most preferred form, when the drywall sheet 43 is secured to the interior sheet 25, the overall thickness of the wall panel in combination with the 1/2 inch drywall is either exactly 4 9/16 inches thick, or closely approaches that dimension. In this way, with a finished assembly, the window jamb 42 is flush with the exterior of surface exterior sheet 23 and with the interior surface of the drywall 43. One advantage of this is that trim pieces 47a and 47b are conveniently and cost effectively mounted flush across the jamb 42 and the drywall as well as along the outside surface of the assembly as illustrated in FIG. 7. This is accomplished while providing thermal characteristics described above and a structural wall that is extremely strong. This is done with a thinner wall assembly, thereby facilitating a prefabricated wall panel that may be transported in less total volume on a truck than with a thicker prefabricated wall panel.

Similarly, FIG. 6 illustrates the present invention in connection with a door jamb 46 of a door 45 rather than a window assembly. This may be created by a cut opening in a wall panel, but more commonly curves at the butt end of 2 wall panels on either side of the door. As with window jamb thickness T_5 the door jamb 46 has a thickness T_6 which often is an industry standard 4 9/16 inches. As such, in combination with the half-inch thickness of the drywall sheet 43, wall panel thickness T_4 (see FIG. 1C) is most ideally 4 1/16 inches, or at least 1-quarter inch plus or minus 1-quarter inch. In this way, the advantages discussed above may likewise be utilized, including the cost effective Hush mounting of trim pieces 47c and 47d.

It should be noted that the drawing illustrations set forth and described are mere examples of the present invention. Various types of other arrangements of the foam core, first and second sheets and strut members may be adapted to achieve advantages of the present invention.

Merely by way of example, with reference to FIG. 5, an arrangement is illustrated two wall panels 21 and 21a may be joined together. In particular, panel 21 includes along a first

vertical side edge a male projection 49. This male projection member is adapted to project into corresponding female reception recess 51 on adjacent panel 21a. As can be seen in FIGS. 3 and 4, a single panel may have a male member at one end and a female member at the opposite vertical side edge to facilitate interconnection of multiple panels along a wall. Note further that one optional, preferred mode of creating this connection, and in particular of creating projection member 49 is to have it formed by two projection flanges 49a and 49b (see FIG.5). Preferably, these are cut from OSB or plywood and are lap jointed and secured along the inner edges sheets 23 and 25 secured thereto. Also, preferably these are left hollow so that in-situ foam may occupy the inner part of this male member as well. In this way, the finished assembly when the male projection 49 is inserted into the female portion 5l, although the overall thickness is approximately 4 inches as described above, it occurs with insulating foam along all parts of the wall. In this way, there are no cold spots allowing thermal leakage. Alternatively, the end arrangements may be made including having the strut member flush with the perimeter edge of the paneling such as stmt member 27j (see FIG. 8). Alternatively, as also seen in FIG. 8; selected wall panels may be formed with no internal strut member along a given edge of the wall panel, instead being formed with the foam in-situ as a temporary dam that is removed after the foam cures. Other approaches may be to modify preferred cross-sectional geometry of the P framing stints. Although the preferred cross-sectional dimension of such struts is exactly 1 ½ inches by 3 3/16 inches, it may be modified within tolerance of this such as being 1 ½ inch by 3 inches. Moreover, it may be formed by a larger cross-sectional piece of wood cut, such as by rabbetting. In this way, a generally L-shaped piece of wood is formed with a rabbet having a cut thickness corresponding to either sheet 23 or 25 sitting within the rabbet, while nevertheless maintaining the interior spacing between such sheets (thickness T_3) at distances to achieve the dimensions preferred in the present invention with the overall wall thickness T_4. For example, a rabbet could be cut three quarter inch by 7/16 inch to accommodate a 7/16 inch OSB board.

Another optional feature is the formation of a bottom female recess 53 (see FIG. 2) formed between sheets 23 and 25 on either side of a recess on the bottom perimeter edge in the foam 29. This recess ordinarily has a vertical dimension of 1 ½ inches and a horizontal dimension identical to the spacing T_3 between the sheets. This recess is used in onsite assembly of the wall panels to be built into a building assembly. Typically, after the floor structure is build, footers, typically made of wood (dimension the same as the struts in the present invention) are fastened to the floor. Thereafter, wall panels are located on such footers with recess 53 sliding over such footers for securement thereto. This helps control the layout of wall panels and provide a secure basis for attachment together with the remainder of the structure.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following two grounds of rejection are presented for review: (1) the rejection of claims 24-56 under 35 U. S. C. § 103 based on Balla-Goddard, U. S. Patent No. 5,743,056, and (2) the rejection of claims 54-56 under 35 U. S. C. § 103 based on Balla-Goddard in view of Porter, U. S. Patent No. 5,771,645.

ARGUMENT

I. The Board Is Urged to Reverse the First Ground of Rejection.

A. Claim 24 Would Not Have Been Obvious Based on Balla-Goddard.

Independent claim 24 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard would have failed to render obvious claim 24 for at least two reasons. First, Balla-Goddard fails to disclose, teach, or suggest the pre-fabricated wall panel of claim 24 comprising "an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches." Second, Balla-Goddard fails to disclose, teach, or suggest the pre-fabricated wall panel of claim 24 comprising "said jamb having a jamb thickness . . . wherein said jamb thickness is substantially equal to the sum of the overall panel thickness and the drywall thickness, such that the jamb is substantially flush therewith for the trim piece to be mounted flush across the jamb and drywall without the use of furring." Each deficiency of Balla-Goddard is discussed in turn.

In reviewing claims for patentability, the Manual of Patent Examination instructs that "[t]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness." *See*, MPEP § 2142. "To establish a prima facie case of obviousness . . . the prior art reference (or references when combined) must teach or suggest all of the claim limitations." *See, Id.* The Federal Circuit reiterated in In re Oetiker, 24 USPQ2d 1443, 1446, 977 F.2d 1443, 1444 (Fed. Cir. 1992), that "[t]here must be come reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination " and "[t]hat knowledge can not come from the applicant's invention itself." Further, "[a]bsent such suggestion to combine the references, respondents can do no more than piece the invention together using the patented invention as a template. Such hindsight

reasoning is impermissible." Texas Instruments Inc. v. U. S. Int'l Trade Comm'n, 26 USPQ2d 1018, 1029, 988 F.2d 1165, 1178 (Fed. Cir. 1993). In addition, it is "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee, 61 USPQ2d 1430, 1433-1434, 277 F.3d 1338, 1343-1344 (Fed. Cir. 2002) (In criticizing reliance on conclusory statements by an examiner, the court vacated the decision of the Patent & Trademark Office Board of Patent Appeals and Interferences which had affirmed an obviousness rejection.)

The June 4, 2004 Office Action recognized that Balla-Goddard does not disclose the pre-fabricated wall panel of claim 24 having an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches but nonetheless concluded that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose the desirable thickness of the panel . . . is considered as an obvious design choice based on desired use." (June 4, 2004 Office Action, page 3.) This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed overall panel thickness. Such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, it fails to establish the requisite reason, suggestion, or motivation for modifying Balla-Goddard to have the panel of claim 24 with the overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches. Indeed, the one panel example provided in Balla-Goddard at column 8, lines 25-28 has two 8 mm thick (.315 inch) VIROC™ cement particle boards containing a polyurethane foam filling 70 mm thick (2.756 inches) for an overall panel thickness of 86 mm or 3.386 inches, which is well below the overall panel thickness recited in claim 24.

By contrast, the Applicant has provided evidence of non-obviousness of the panel of claim 24. The law is well settled that in evaluating obviousness type rejections under 35 U. S. C. § 103 the Patent Office must always consider evidence of secondary considerations when presented. Cable Elec. Prods., Inc. v. Genmark, Inc., 226 USPQ 881, 887, 770 F.2d 1015, 1026 (Fed. Cir. 1985). The Federal Circuit has directed that:

> when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light. Such objective indicia as commercial success, or filling an existing need, illuminate the technological and commercial environment of the inventor, and aid in understanding the state of the art at the time the invention was made.

Continental Can Co. USA v. Monsanto Co., 20 USPQ2d 1746, 1752, 948 F.2d 1264, 1273 (Fed. Cir. 1991). This "evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not." Stratoflex, Inc. v. Aeroquip Corp., 218 USPQ 871, 879, 713 F.2d 1530, 1538 (Fed. Cir. 1983).

A Declaration of Mr. Pat Egan is submitted herewith in the Evidence Appendix. This Declaration was filed on September 16, 2003 and entered in either the December 17, 2003 Office Action or the June 4, 2004 Office Action. The Declaration provides data supporting the commercial success story regarding products sold by Mr. Egan's company THERMOCORE. The Declaration is specific that there are a variety of Pre-Fabricated Panel configurations sold by Mr. Egan's company and that many of the configurations are covered by claims in the pending application. However, there may also be some Pre-Fabricated Panel configurations that are included in the sales volume, but are not covered by a pending claim.

The Declaration of Mr. Patrick Egan provides evidence regarding the commercial success of products associated with the present application. A pair of Declarations filed October 22, 2001 by Mr. Dave Scheilder and Mr. Ray Micham and entered in the February 15, 2002 Office Action articulate the sentiment of at least two people of experience in the industry. The Declarations provide evidence of the filling of an unmet existing need and of the commercial success of the present invention due at least in part to elimination of furring.

The Declaration of Mr. Patrick Egan places into evidence facts regarding secondary considerations that must be contemplated when the Patent Office evaluates the obviousness of the claimed invention. As directed by the Court of Appeals for the Federal Circuit this evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. Indeed, the Declarations of Mr. Patrick Egan, Mr. Dave Scheilder, and Mr. Ray Micham provide evidence of not only the commercial success of the present invention but also of the filling of an unmet existing need and thus provide evidence of the non-obviousness of the panel of claim 24.

In response to the Declaration of Mr. Patrick Egan, the June 4, 2004 Office Action stated that "[a]lthough, the applicant's discovered panel thickness ranges had made some commercially success over years; however, the examiner considers this would have been an obvious of design choice for a desirable application." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed overall panel thickness. Indeed, such a conclusory statement without

evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee.

In short, there has been shown no evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to have a panel with an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches. On the other hand, the Applicant has provided evidence of non-obviousness. As such, Balla-Goddard would have failed to render obvious the pre-fabricated wall panel of claim 24 comprising an "overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches." For at least this reason, the Board is urged to reverse the rejection of claim 24.

In addition, Balla-Goddard fails to disclose, teach, or suggest the panel of claim 24 which has a jamb thickness substantially equal to the sum of the overall panel thickness and the drywall thickness, such that the jamb is substantially flush therewith for the trim piece to be mounted flush across the jamb and drywall without the use of furring. The June 4, 2004 Office Action refers to Balla-Goddard's plasterboard strips 33 as a jamb member. However, it is respectfully urged that plasterboard strips 33 do not qualify as a jamb member.

The American Mechanical Dictionary defines the term "jamb" as "[t]he upright sides of an aperture, as a doorway, window, or fireplace, and supporting the lintel, entablature, or mantel." Merriam-Webster's Collegiate Dictionary, 10th Edition, defines the term "jamb" as "an upright piece or surface forming the side of an opening (as for a door, window, or fireplace). As shown in Fig. 4 of Balla-Goddard, plasterboard strips 33 do not provide an opening for a door, window, or fireplace. Indeed, strips 33 do not receive window 212 at all. Rather, window 212 is positioned within brick facing 36 and cavity barrier 214 so as to be secured to L-shaped brackets 208, all of which are outside and in front of the area defined by strips 33. Further, plasterboard strips 33 do not support lintel 222. Rather, L-shaped brackets 208 support lintel 222. Moreover, plasterboard strips 33 appear to be more like furring rather than any jamb or jamb member. On the other hand, the present application discloses in Fig. 6 an example where a door 45 is received within a door jamb 46 and discloses in Fig. 7 another example where a window 41 is received and supported within a window jamb 42.

As such, Balla-Goddard would have failed to render obvious the pre-fabricated wall panel of claim 24 comprising "said jamb having a jamb thickness . . . wherein said jamb thickness is substantially equal to the sum of said overall panel thickness and said drywall thickness, such that said jamb is substantially flush therewith for said trim piece to be mounted flush across the jamb and drywall without the use of furring." For at least this additional reason,

the Board is urged to reverse the rejection of claim 24 as well as claims 25-43 depending therefrom.

B. Claim 25 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 25 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose any electrical box located between first and second facing sheets, much less a conduit for electrical wires running between the electrical box and the first sheet perimeter and much less at least partially surrounding the electrical box and the conduit with polymeric in-situ foam located in and substantially filling a panel volume between the facing sheets. The June 4, 2004 Office Action identifies service ducts 103 of Balla-Goddard which are for electricity cables, telephone lines, sewer pipes, and/or gas pipes (Balla-Goddard at column 7, lines 38-43 and Fig. 9). However, service ducts 103 are located between plasterboard 52 and one of panel skins 56, not between the first and second panel skins 56. No evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to include the recitations of claim 25 has been provided. As a result, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 25 comprising "at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit." The Board is therefore urged to reverse the rejection of claim 25 as well as claims 26-33 depending therefrom.

C. Claim 27 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 27 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Fig. 4 of Balla-Goddard shows that window 212 is mounted within bricks 36 and cavity barrier 214 by use of L-shaped-brackets 208. As such, window 212 is not mounted within panels 30, 32. Further, Balla-Goddard does not disclose any window jamb having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness. No evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to arrive at the panel of claim 27 has been provided. Balla-Goddard would thus not have rendered obvious the pre-fabricated wall panel of claim 27 comprising "a window mounted in said window opening [which according to claim 26 is cut in said first sheet and said second sheet and partially defined by strut members around a perimeter thereof], said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness."

The Board is therefore urged to reverse the rejection of claim 27 as well as claims 28-33 depending therefrom.

D. Claim 28 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 28 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose the thermal insulation R-value for its panel, much less an R-value of at least 20. The June 4, 2004 Office Action asserts that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose . . . the R value insulation to accommodate the opening thickness is considered as an obvious design choice based on desired use." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to have an R-value of at least 20 as opposed to other R-values. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, there is no reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 28. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 28 "wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20." The Board is therefore urged to reverse the rejection of claim 28 as well as claims 29-33 depending therefrom.

E. Claim 32 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 32 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose any wooden struts having actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches. The June 4, 2004 Office Action asserts that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose . . . the strut cross section thickness . . . is considered as an obvious design choice based on desired use." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to have the recited strut cross-sectional dimensiong as opposed to other dimensions. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, there is no reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 32. By contrast, use of the specific recited dimensions facilitates use of a jamb without furring. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 32 "wherein said struts comprise wooden struts having actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches."

The Board is therefore urged to reverse the rejection of claim 32 as well as claim 33 depending therefrom.

F. Claim 33 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 33 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose a ½ inch thick sheet of drywall, much less such a sheet of drywall having an interior surface that is flush with a jamb member interior edge. Moreover, in contravention of In re Sang Su Lee, the June 4, 2004 provides no evidence of a reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 33 having a ½ inch thick sheet of drywall. Indeed, there is no reason, motivation, or suggestion for modifying Balla-Goddard in this way. Further, since plasterboard strips 33 do not qualify as a jamb or jamb member as discussed above, Balla-Goddard fails to disclose, teach, or suggest drywall having an interior surface flush with a jamb member interior edge. By contrast, use of the specific recited dimension facilitates use of a jamb without furring. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 33 "having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge." The Board is therefore urged to reverse the rejection of claim 33.

G. Claim 35 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 35 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Fig. 4 of Balla-Goddard shows that window 212 is mounted within bricks 36 and cavity barrier 214 by use of L-shaped-brackets 208. As such, window 212 is not mounted within panels 30, 32. Further, Balla-Goddard does not disclose any window jamb having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness. No evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to arrive at the panel of claim 35 has been provided. Balla-Goddard would thus not have rendered obvious the pre-fabricated wall panel of claim 35 comprising "a window mounted in said window opening [which according to claim 34 is cut in said first sheet and said second sheet and partially defined by strut members around a perimeter thereof], said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness." The Board is therefore urged to reverse the rejection of claim 35.

H. Claim 36 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 36 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose the thermal insulation R-value for its panel, much less an R-value of at least 20. The June 4, 2004 Office Action asserts that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose . . . the R value insulation to accommodate the opening thickness is considered as an obvious design choice based on desired use." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to have an R-value of at least 20 as opposed to other R-values. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, there is no reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 36. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 36 "wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20." The Board is therefore urged to reverse the rejection of claim 36.

I. Claim 40 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 40 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose any wooden struts having actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches. The June 4, 2004 Office Action asserts that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose . . . the strut cross section thickness . . . is considered as an obvious design choice based on desired use." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to have the recited strut cross-sectional dimensiong as opposed to other dimensions. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, there is no reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 40. By contrast, use of the specific recited dimensions facilitates use of a jamb without furring. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 40 "wherein said struts comprise wooden struts having actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches." The Board is therefore urged to reverse the rejection of claim 40.

J. Claim 41 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 41 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose a ½ inch thick sheet of drywall, much less such a sheet of drywall having an interior surface that is flush with a jamb member interior edge. Moreover, in contravention of In re Sang Su Lee, the June 4, 2004 provides no evidence of a reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 41 having a ½ inch thick sheet of drywall. Indeed, there is no reason, motivation, or suggestion for modifying Balla-Goddard in this way. Further, since plasterboard strips 33 do not qualify as a jamb or jamb member as discussed above, Balla-Goddard fails to disclose, teach, or suggest drywall having an interior surface flush with a jamb member interior edge. By contrast, use of the specific recited dimension facilitates use of a jamb without furring. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 41 "having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge." The Board is therefore urged to reverse the rejection of claim 41.

K. Claim 42 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 42 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose a jamb having a thickness of 4 9/16 inches and drywall having a thickness of ½ inch. There is no reason, suggestion, or motivation for modifying Balla-Goddard to arrive at the panel of claim 42 has been provided. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 42 "wherein said jamb has a thickness of 4 9/16 inches and said drywall has a thickness of ½ inch. The Board is therefore urged to reverse the rejection of claim 42.

L. Claim 43 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 43 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose the thermal insulation R-value for its panel, much less an R-value of at least 20. Balla-Goddard also does not disclose any wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches. Further, Balla-Goddard does not disclose that its skins 56 are made from 7/16 inch thick OSB. Moreover, there has been shown no reason, motivation, or suggestion for modifying Balla-Goddard to combine those particular features in a panel. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 24 "wherein said wall panels have a thermal insulation R-value through a foam containing

portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick OSB." The Board is therefore urged to reverse the rejection of claim 43.

M. Claim 44 Would Not Have Been Obvious Based on Balla-Goddard.

Independent claim 44 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard would have failed to render obvious claim 44 for at least two reasons. First, Balla-Goddard fails to disclose, teach, or suggest the pre-fabricated wall panel of claim 44 comprising "an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches." Second, Balla-Goddard fails to disclose, teach, or suggest the pre-fabricated wall panel of claim 44 "wherein the jamb thickness is adapted to be assembled substantially flush to the panel and drywall without the use of furring."

The June 4, 2004 Office Action recognized that Balla-Goddard does not disclose the pre-fabricated wall panel of claim 44 having an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches but nonetheless concluded that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose the desirable thickness of the panel . . . is considered as an obvious design choice based on desired use." (June 4, 2004 Office Action, page 3.) This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed overall panel thickness. Such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, it fails to establish the requisite reason, suggestion, or motivation for modifying Balla-Goddard to have the panel of claim 44 with the overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches. Indeed, the one panel example provided in Balla-Goddard at column 8, lines 25-28 has two 8 mm thick (.315 inch) VIROC™ cement particle boards containing a polyurethane foam filling 70 mm thick (2.756 inches) for an overall panel thickness of 86 mm or 3.386 inches, which is well below the overall panel thickness recited in claim 44.

By contrast, the Applicant has provided evidence of non-obviousness of the panel of claim 44. The law is well settled that in evaluating obviousness type rejections under 35 U. S. C. § 103 the Patent Office must always consider evidence of secondary considerations when presented. Cable Elec. Prods., Inc. v. Genmark, Inc., 226 USPQ 881, 887, 770 F.2d 1015, 1026 (Fed. Cir. 1985). The Federal Circuit has directed that:

> when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light. Such objective indicia as commercial success, or filling an existing need, illuminate the technological and commercial environment of the inventor, and aid in understanding the state of the art at the time the invention was made.

Continental Can Co. USA v. Monsanto Co., 20 USPQ 2d 1746, 1752, 948 F.2d 1264, 1273 (Fed. Cir. 1991). This "evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not." Stratoflex, Inc. v. Aeroquip Corp., 218 USPQ 871, 879, 713 F.2d 1530, 1538 (Fed. Cir. 1983).

A Declaration of Mr. Pat Egan is submitted herewith in the Evidence Appendix. This Declaration was filed on September 16, 2003 and entered in either the December 17, 2003 Office Action or the June 4, 2004 Office Action. The Declaration provides data supporting the commercial success story regarding products sold by Mr. Egan's company THERMOCORE. The Declaration is specific that there are a variety of Pre-Fabricated Panel configurations sold by Mr. Egan's company and that many of the configurations are covered by claims in the pending application. However, there may also be some Pre-Fabricated Panel configurations that are included in the sales volume, but are not covered by a pending claim.

The Declaration of Mr. Patrick Egan provides evidence regarding the commercial success of products associated with the present application. A pair of Declarations filed October 22, 2001 by Mr. Dave Scheilder and Mr. Ray Micham and entered in the February 15, 2002 Office Action articulate the sentiment of at least two people of experience in the industry. The Declarations provide evidence of the filling of an unmet existing need and of the commercial success of the present invention due at least in part to elimination of furring.

The Declaration of Mr. Patrick Egan places into evidence facts regarding secondary considerations that must be contemplated when the Patent Office evaluates the obviousness of the claimed invention. As directed by the Court of Appeals for the Federal Circuit this evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. Indeed, the Declarations of Mr. Patrick Egan, Mr. Dave Scheilder, and Mr. Ray Micham provide evidence of not only the commercial success of the present invention but also of the filling of an unmet existing need and thus provide evidence of the non-obviousness of the panel of claim 44.

In response to the Declaration of Mr. Patrick Egan, the June 4, 2004 Office Action stated that "[a]lthough, the applicant's discovered panel thickness ranges had made some commercially success over years; however, the examiner considers this would have been an obvious of design choice for a desirable application." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed overall panel thickness. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee.

In short, there is no evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to have a panel with an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches. The June 4, 2004 Office Action's conclusory assertions of "design choice" fall well short of the obligation to provide evidence of the requisite reason, suggestion, or motivation for modifying Balla-Goddard. On the other hand, the Applicant has provided evidence of non-obviousness. As such, Balla-Goddard would have failed to render obvious the pre-fabricated wall panel of claim 44 comprising an "overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches." For at least this reason, the Board is urged to reverse the rejection of claim 44.

In addition, Balla-Goddard fails to disclose, teach, or suggest the panel of claim 44 which has a jamb thickness that is adapted to be assembled substantially flush to the panel and drywall without the use of furring. The June 4, 2004 Office Action refers to Balla-Goddard's plasterboard strips 33 as a jamb member. However, it is respectfully urged that plasterboard strips 33 do not qualify as such.

The American Mechanical Dictionary defines the term "jamb" as "[t]he upright sides of an aperture, as a doorway, window, or fireplace, and supporting the lintel, entablature, or mantel." Merriam-Webster's Collegiate Dictionary, 10th Edition, defines the term "jamb" as "an upright piece or surface forming the side of an opening (as for a door, window, or fireplace). As shown in Fig. 4 of Balla-Goddard, plasterboard strips 33 do not provide an opening for a door, window, or fireplace. Indeed, strips 33 do not receive window 212 at all. Rather, window 212 is positioned within brick facing 36 and cavity barrier 214 so as to be secured to L-shaped brackets 208, all of which are outside and in front of the area defined by strips 33. Further, plasterboard strips 33 do not support lintel 222. Rather, L-shaped brackets 208 support lintel 222. Moreover, plasterboard strips 33 appear to be more like furring rather than any jamb or jamb member. On the other hand, the present application discloses in Fig. 6 an example where a door 45 is received

within a door jamb 46 and discloses in Fig. 7 another example where a window 41 is received and supported within a window jamb 42.

As such, Balla-Goddard would have failed to render obvious the pre-fabricated wall panel of claim 44 "wherein the jamb thickness is adapted to be assembled substantially flush to the panel and drywall without the use of furring." For at least this additional reason, the Board is urged to reverse the rejection of claim 44 as well as claims 45-52 depending therefrom.

N. Claim 45 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 45 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose any electrical box located between first and second facing sheets, much less a conduit for electrical wires running between the electrical box and the first sheet perimeter and much less at least partially surrounding the electrical box and the conduit with polymeric in-situ foam located in and substantially filling a panel volume between the facing sheets. The June 4, 2004 Office Action identifies service ducts 103 of Balla-Goddard which are for electricity cables, telephone lines, sewer pipes, and/or gas pipes (Balla-Goddard at column 7, lines 38-43 and Fig. 9). However, service ducts 103 are located between plasterboard 52 and one of panel skins 56, not between the first and second panel skins 56. No evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to include the recitations of claim 45 has been provided. As a result, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 45 comprising "at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit." The Board is therefore urged to reverse the rejection of claim 45 as well as claims 46-51 depending therefrom.

O. Claim 46 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 46 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose the thermal insulation R-value for its panel, much less an R-value of at least 20. The June 4, 2004 Office Action asserts that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose . . . the R value insulation to accommodate the opening thickness is considered as an obvious design choice based on desired use." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to have an R-value of at least 20 as opposed to other R-values. Indeed, such a conclusory statement without evidentiary support violates "the

obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, there is no reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 46. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 46 "wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20." The Board is therefore urged to reverse the rejection of claim 46.

P. Claim 50 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 50 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose any wooden struts having actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches. The June 4, 2004 Office Action asserts that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose . . . the strut cross section thickness . . . is considered as an obvious design choice based on desired use." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to have the recited strut cross-sectional dimensiong as opposed to other dimensions. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, there is no reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 50. By contrast, use of the specific recited dimensions facilitates use of a jamb without furring. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 50 "wherein said struts comprise wooden struts having actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches." The Board is therefore urged to reverse the rejection of claim 50.

Q. Claim 51 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 51 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose a ½ inch thick sheet of drywall, much less such a sheet of drywall having an interior surface that is flush with a jamb member interior edge. Moreover, in contravention of In re Sang Su Lee, the June 4, 2004 provides no evidence of a reason, motivation, or suggestion for modifying Balla-Goddard to arrive at the panel of claim 51 having a ½ inch thick sheet of drywall. Indeed, there is no reason, motivation, or suggestion for modifying Balla-Goddard in this way. Further, since plasterboard strips 33 do not qualify as a jamb or jamb member as discussed above, Balla-Goddard fails to disclose, teach, or suggest drywall having an interior surface flush with a jamb member interior edge. By contrast, use of the specific recited

dimension facilitates use of a jamb without furring. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 51 "having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge." The Board is therefore urged to reverse the rejection of claim 51.

R. Claim 52 Would Not Have Been Obvious Based on Balla-Goddard.

Balla-Goddard does not disclose the thermal insulation R-value for its panel, much less an R-value of at least 20. Balla-Goddard also does not disclose any wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches. Further, Balla-Goddard does not disclose that its skins 56 are made from 7/16 inch thick wood-based material. Moreover, there has been shown no reason, motivation, or suggestion for modifying Balla-Goddard to combine those particular features in a panel. As such, Balla-Goddard would not have rendered obvious the pre-fabricated wall panel of claim 52 "wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick wood-based material." The Board is therefore urged to reverse the rejection of claim 52.

S. Claim 53 Would Not Have Been Obvious Based on Balla-Goddard.

Independent claim 53 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard would have failed to render obvious claim 53 for at least two reasons. First, Balla-Goddard fails to disclose, teach, or suggest the prefabricated building component of claim 53 comprising "a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches." Second, Balla-Goddard fails to disclose, teach, or suggest the prefabricated building component of claim 53 comprising "a window receiving frame formed in the panel and adapted to receive a window therein, said window receiving frame includes a plurality of window struts adapted to receive fasteners to anchor the window."

The June 4, 2004 Office Action recognized that Balla-Goddard does not disclose the prefabricated building component of claim 53 having a panel with an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches but nonetheless concluded that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose the desirable thickness of the panel . . . is considered as an obvious design choice based on desired

use." (June 4, 2004 Office Action, page 3.) This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed exterior thickness. Such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, it fails to establish the requisite reason, suggestion, or motivation for modifying Balla-Goddard to have the panel of claim 53 with the exterior thickness being between approximately 3 ¾ inches and 4 ¼ inches. Indeed, the one panel example provided in Balla-Goddard at column 8, lines 25-28 has two 8 mm thick (.315 inch) VIROC™ cement particle boards containing a polyurethane foam filling 70 mm thick (2.756 inches) for an overall panel thickness of 86 mm or 3.386 inches, which is well below the exterior thickness recited in claim 53.

By contrast, the Applicant has provided evidence of non-obviousness of the panel of claim 53. The law is well settled that in evaluating obviousness type rejections under 35 U. S. C. § 103 the Patent Office must always consider evidence of secondary considerations when presented. Cable Elec. Prods., Inc. v. Genmark, Inc., 226 USPQ 881, 887, 770 F.2d 1015, 1026 (Fed. Cir. 1985). The Federal Circuit has directed that:

> when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light. Such objective indicia as commercial success, or filling an existing need, illuminate the technological and commercial environment of the inventor, and aid in understanding the state of the art at the time the invention was made.

Continental Can Co. USA v. Monsanto Co., 20 USPQ 2d 1746, 1752, 948 F.2d 1264, 1273 (Fed. Cir. 1991). This "evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not." Stratoflex, Inc. v. Aeroquip Corp., 218 USPQ 871, 879, 713 F.2d 1530, 1538 (Fed. Cir. 1983).

A Declaration of Mr. Pat Egan is submitted herewith in the Evidence Appendix. This Declaration was filed on September 16, 2003 and entered in either the December 17, 2003 Office Action or the June 4, 2004 Office Action. The Declaration provides data supporting the commercial success story regarding products sold by Mr. Egan's company THERMOCORE. The Declaration is specific that there are a variety of Pre-Fabricated Panel configurations sold by Mr. Egan's company and that many of the configurations are covered by claims in the pending

application. However, there may also be some Pre-Fabricated Panel configurations that are included in the sales volume, but are not covered by a pending claim.

The Declaration of Mr. Patrick Egan provides evidence regarding the commercial success of products associated with the present application. A pair of Declarations filed October 22, 2001 by Mr. Dave Scheilder and Mr. Ray Micham and entered in the February 15, 2002 Office Action articulate the sentiment of at least two people of experience in the industry. The Declarations provide evidence of the filling of an unmet existing need and of the commercial success of the present invention due at least in part to elimination of furring.

The Declaration of Mr. Patrick Egan places into evidence facts regarding secondary considerations that must be contemplated when the Patent Office evaluates the obviousness of the claimed invention. As directed by the Court of Appeals for the Federal Circuit this evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. Indeed, the Declarations of Mr. Patrick Egan, Mr. Dave Scheilder, and Mr. Ray Micham provide evidence of not only the commercial success of the present invention but also of the filling of an unmet existing need and thus provide evidence of the non-obviousness of the panel of claim 53 having an exterior thickness being between approximately 3 ¾ inches and 4 ¼ inches.

In response to the Declaration of Mr. Patrick Egan, the June 4, 2004 Office Action stated that "[a]lthough, the applicant's discovered panel thickness ranges had made some commercially success over years; however, the examiner considers this would have been an obvious of design choice for a desirable application." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed overall panel thickness. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee.

In short, there has been shown no evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to have a panel with an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches. On the other hand, the Applicant has provided evidence of non-obviousness. As such, Balla-Goddard would have failed to render obvious the prefabricated building component of claim 53 comprising an "a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches." For at least this reason, the Board is urged to reverse the rejection of claim 53.

In addition, Balla-Goddard fails to disclose, teach, or suggest a window receiving frame formed in the panel. In particular, Fig. 4 of Balla-Goddard shows that window frame 34 is not formed in either top panel 30 or base panel 32. Indeed, frame 34 is not part of either panel 30, 32 at all. Rather, frame 34 is secured to L-shaped brackets 208 so as to be positioned outside of and in front of panels 30, 32 but not formed in either panel 30, 32. The June 4, 2004 appears to have recognized this deficiency in Balla-Goddard since it does not explain why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to arrive at the prefabricated building component of claim 53 and does not explain how one of ordinary skill in the art would have modified Balla-Goddard to arrive at the prefabricated building component of claim 53. In fact, there is no reason, suggestion, or motivation for modifying Balla-Goddard to arrive at the component of claim 53. As such, Balla-Goddard would have failed to render obvious the prefabricated building component of claim 53 comprising "a window receiving frame formed in said panel and adapted to receive a window therein, said window receiving frame includes a plurality of window struts adapted to receive fasteners to anchor the window." For at least this additional reason, the Board is urged to reverse the rejection of claim 53 as well as claims 54 and 55 depending therefrom.

T. Claim 54 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 54 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose any electrical box located between first and second sheets, much less a conduit for electrical wires running between the electrical box and the first sheet perimeter and much less at least partially surrounding the electrical box and the conduit with polymeric in-situ foam located in and substantially filling an interior volume between the facing sheets. The June 4, 2004 Office Action identifies service ducts 103 of Balla-Goddard which are for electricity cables, telephone lines, sewer pipes, and/or gas pipes (Balla-Goddard at column 7, lines 38-43 and Fig. 9). However, service ducts 103 are located between plasterboard 52 and one of panel skins 56, not between the first and second panel skins 56. No evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to include the recitations of claim 25 has been provided. As a result, Balla-Goddard would not have rendered obvious the prefabricated building component of claim 54 comprising "at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit." The Board is therefore urged to reverse the rejection of claim 54 as well as claim 55 depending therefrom.

U. Claim 55 Would Not Have Been Obvious Based on Balla-Goddard.

Claim 55 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard does not disclose fixturing any components during application of foam between skins 56, much less fixturing skins 56, any framing struts, *and* any window frame struts. The June 4, 2004 appears to recognize this deficiency because it too is silent on this issue. Moreover, there is no reason, suggestion, or motivation for modifying Balla-Goddard to fixture skins 56, any framing struts, and any window frame struts during application of foam. As such, Balla-Goddard would not have rendered obvious the prefabricated building component of claim 55 "wherein the first sheet, the second sheet, the plurality of framing struts and the plurality of window struts are fixtured during the substantial filling of the interior volume with said foam core." The Board is therefore urged to reverse the rejection of claim 55.

V. Claim 56 Would Not Have Been Obvious Based on Balla-Goddard.

Independent claim 56 is rejected under 35 U. S. C. § 103 based on Balla-Goddard. Balla-Goddard would have failed to render obvious claim 56 for at least two reasons. First, Balla-Goddard fails to disclose, teach, or suggest the prefabricated building component of claim 56 comprising "a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches." Second, Balla-Goddard fails to disclose, teach, or suggest the pre-fabricated wall panel of claim 56 comprising "at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter . . . and wherein said in-situ foam at least partially surrounds said electrical box and said conduit."

The June 4, 2004 Office Action recognized that Balla-Goddard does not disclose the prefabricated building component of claim 56 having a panel with an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches but nonetheless concluded that "[i]t would have obvious to one of ordinary skill in the art at the time the invention was made to choose the desirable thickness of the panel . . . is considered as an obvious design choice based on desired use." (June 4, 2004 Office Action, page 3.) This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed exterior thickness. Such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee. Moreover, it fails to establish the requisite reason, suggestion, or motivation for modifying Balla-Goddard to have the panel of claim 56 with the exterior thickness being between approximately 3 ¾ inches and 4 ¼ inches. Indeed, the one panel example provided in

Balla-Goddard at column 8, lines 25-28 has two 8 mm thick (.315 inch) VIROC™ cement particle boards containing a polyurethane foam filling 70 mm thick (2.756 inches) for an overall panel thickness of 86 mm or 3.386 inches, which is well below the exterior thickness recited in claim 56.

By contrast, the Applicant has provided evidence of non-obviousness of the panel of claim 56. The law is well settled that in evaluating obviousness type rejections under 35 U. S. C. § 103 the Patent Office must always consider evidence of secondary considerations when presented. Cable Elec. Prods., Inc. v. Genmark, Inc., 226 USPQ 881, 887, 770 F.2d 1015, 1026 (Fed. Cir. 1985). The Federal Circuit has directed that:

> when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light. Such objective indicia as commercial success, or filling an existing need, illuminate the technological and commercial environment of the inventor, and aid in understanding the state of the art at the time the invention was made.

Continental Can Co. USA v. Monsanto Co., 20 USPQ 2d 1746, 1752, 948 F.2d 1264, 1273 (Fed. Cir. 1991). This "evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not." Stratoflex, Inc. v. Aeroquip Corp., 218 USPQ 871, 879, 713 F.2d 1530, 1538 (Fed. Cir. 1983).

A Declaration of Mr. Pat Egan is submitted herewith in the Evidence Appendix. This Declaration was filed on September 16, 2003 and entered in either the December 17, 2003 Office Action or the June 4, 2004 Office Action. The Declaration provides data supporting the commercial success story regarding products sold by Mr. Egan's company THERMOCORE. The Declaration is specific that there are a variety of Pre-Fabricated Panel configurations sold by Mr. Egan's company and that many of the configurations are covered by claims in the pending application. However, there may also be some Pre-Fabricated Panel configurations that are included in the sales volume, but are not covered by a pending claim.

The Declaration of Mr. Patrick Egan provides evidence regarding the commercial success of products associated with the present application. A pair of Declarations filed October 22, 2001 by Mr. Dave Scheilder and Mr. Ray Micham and entered in the February 15, 2002 Office Action articulate the sentiment of at least two people of experience in the industry. The Declarations provide evidence of the filling of an unmet existing need and of the commercial success of the present invention due at least in part to elimination of furring.

The Declaration of Mr. Patrick Egan places into evidence facts regarding secondary considerations that must be contemplated when the Patent Office evaluates the obviousness of the claimed invention. As directed by the Court of Appeals for the Federal Circuit this evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. Indeed, the Declarations of Mr. Patrick Egan, Mr. Dave Scheilder, and Mr. Ray Micham provide evidence of not only the commercial success of the present invention but also of the filling of an unmet existing need and thus provide evidence of the non-obviousness of the panel of claim 56 having an exterior thickness being between approximately 3 ¾ inches and 4 ¼ inches.

In response to the Declaration of Mr. Patrick Egan, the June 4, 2004 Office Action stated that "[a]lthough, the applicant's discovered panel thickness ranges had made some commercially success over years; however, the examiner considers this would have been an obvious of design choice for a desirable application." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed overall panel thickness. Indeed, such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee.

In short, there has been shown no evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to have a panel with an overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches. On the other hand, the Applicant has provided evidence of non-obviousness. As such, Balla-Goddard would have failed to render obvious the prefabricated building component of claim 56 comprising an "a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches." For at least this reason, the Board is urged to reverse the rejection of claim 56.

In addition, Balla-Goddard does not disclose any electrical box located between first and second sheets, much less a conduit for electrical wires running between the electrical box and the first sheet perimeter and much less at least partially surrounding the electrical box and the conduit with polymeric in-situ foam located in and substantially filling an interior volume between the facing sheets. The June 4, 2004 Office Action identifies service ducts 103 of Balla-Goddard which are for electricity cables, telephone lines, sewer pipes, and/or gas pipes (Balla-Goddard at column 7, lines 38-43 and Fig. 9). However, service ducts 103 are located between plasterboard 52 and one of panel skins 56, not between the first and second panel skins 56. No evidence of a reason, suggestion, or motivation for modifying Balla-Goddard to include the

recitations of claim 56 has been provided. As a result, Balla-Goddard would not have rendered obvious the prefabricated building component of claim 56 comprising "at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter . . . and wherein said in-situ foam at least partially surrounds said electrical box and said conduit." For at least this additional reason, the Board is urged to reverse the rejection of claim 56.

II. The Board Is Urged to Reverse the Second Ground of Rejection.

A. Claim 54 Would Not Have Been Obvious Based on Balla-Goddard in View of Porter.

Claim 54 is rejected under 35 U. S. C. § 103 based on Balla-Goddard in view of Porter. Neither Balla-Goddard nor Porter discloses an electrical wire conduit at least partially surrounded by in-situ foam that substantially fills an interior volume formed between two panel sheets. Balla-Goddard discloses in Fig. 9 service ducts 103 that are located between plasterboard 52 and panel 16 but are not located in foam 58. Porter discloses forming a "wiring chase" in foam merely by removing pre-cut strips of foam in the field at the job site. The wiring chase is thus a space formed in the foam as a channel upon removal of the pre-cut foam strips. As such, Porter has no need for, and in fact does not disclose use of, an additional conduit routed through the foam for electrical wires. Balla-Goddard in view of Porter would have thus failed to render obvious the prefabricated building component of claim 54 comprising "at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds . . . said conduit." The Board is thus urged to reverse the rejection of claim 54 as well as claim 55 depending therefrom.

B. Claim 55 Would Not Have Been Obvious Based on Balla-Goddard in View of Porter.

Claim 55 is rejected under 35 U. S. C. § 103 based on Balla-Goddard in view of Porter. Balla-Goddard does not disclose fixturing any components during application of foam between skins 56, much less fixturing skins 56, any framing struts, and any window frame struts. Porter also fails to disclose fixturing its outer facings, any framing struts, and any window frame struts. Indeed, the Porter panel does not have any framing struts and, because it does not have any window, also does not have any window frame struts. The June 4, 2004 Office Action fails to address these deficiencies in Balla-Goddard and Porter. As such, Balla-Goddard in view of Porter would not have rendered obvious the prefabricated building component of claim 55 "wherein the first sheet, the second sheet, the plurality of framing struts and the plurality of

window struts are fixtured during the substantial filling of the interior volume with said foam core." The Board is therefore urged to reverse the rejection of claim 55.

C. Claim 56 Would Not Have Been Obvious Based on Balla-Goddard in View of Porter.

Independent claim 56 is rejected under 35 U. S. C. § 103 based on Balla-Goddard in view of Porter. Balla-Goddard would have failed to render obvious claim 56 for at least two reasons. First, Balla-Goddard fails to disclose, teach, or suggest the prefabricated building component of claim 56 comprising "a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches." Second, Balla-Goddard fails to disclose, teach, or suggest the pre-fabricated wall panel of claim 56 comprising "at least one conduit for electrical wires running between said electrical box and said first sheet perimeter . . . and wherein said in-situ foam at least partially surrounds . . . said conduit."

Balla-Goddard does not disclose that its panel has an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches. Similarly, Porter does not disclose that its panel has an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches. Moreover, there has been shown no evidence of a reason, suggestion, or motivation for modifying Balla-Goddard in view of Porter to have such an exterior thickness. The June 4, 2004 Office Action's conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed exterior thickness. Such a conclusory statement without evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee.

By contrast, the Applicant has provided evidence of non-obviousness of the panel of claim 56. The law is well settled that in evaluating obviousness type rejections under 35 U. S. C. § 103 the Patent Office must always consider evidence of secondary considerations when presented. Cable Elec. Prods., Inc. v. Genmark, Inc., 226 USPQ 881, 887, 770 F.2d 1015, 1026 (Fed. Cir. 1985). The Federal Circuit has directed that:

> when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light. Such objective indicia as commercial success, or filling an existing need, illuminate the technological and commercial environment of the inventor, and aid in understanding the state of the art at the time the invention was made.

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The Declaration of Mr. Patrick Egan provides evidence regarding the commercial success of products associated with the present application. A pair of Declarations filed October 22, 2001 by Mr. Dave Scheilder and Mr. Ray Micham and entered in the February 15, 2002 Office Action articulate the sentiment of at least two people of experience in the industry. The Declarations provide evidence of the filling of an unmet existing need and of the commercial success of the present invention due at least in part to elimination of furring.

The Declaration of Mr. Patrick Egan places into evidence facts regarding secondary considerations that must be contemplated when the Patent Office evaluates the obviousness of the claimed invention. As directed by the Court of Appeals for the Federal Circuit this evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. Indeed, the Declarations of Mr. Patrick Egan, Mr. Dave Scheilder, and Mr. Ray Micham provide evidence of not only the commercial success of the present invention but also of the filling of an unmet existing need and thus provide evidence of the non-obviousness of the panel of claim 56 having an exterior thickness being between approximately 3 ¾ inches and 4 ¼ inches.

In response to the Declaration of Mr. Patrick Egan, the June 4, 2004 Office Action stated that "[a]lthough, the applicant's discovered panel thickness ranges had made some commercially success over years; however, the examiner considers this would have been an obvious of design choice for a desirable application." This conclusory assertion of "design choice" is not a reason why one of ordinary skill in the art would have been motivated to modify Balla-Goddard to include the claimed overall panel thickness. Indeed, such a conclusory statement without

evidentiary support violates "the obligation [of the agency] to develop an evidentiary basis for its findings." In re Sang Su Lee.

In short, there has been shown no evidence of a reason, suggestion, or motivation for modifying Balla-Goddard in view of Porter to have a panel with an exterior thickness being between approximately 3 ¾ inches and 4 ¼ inches. On the other hand, the Applicant has provided evidence of non-obviousness. As such, Balla-Goddard would have failed to render obvious the prefabricated building component of claim 56 comprising an "a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches." For at least this reason, the Board is urged to reverse the rejection of claim 56.

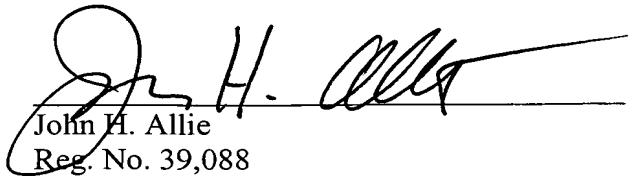
In addition, neither Balla-Goddard nor Porter discloses an electrical wire conduit at least partially surrounded by in-situ foam that substantially fills an interior volume formed between two panel sheets. Balla-Goddard discloses in Fig. 9 service ducts 103 that are located between plasterboard 52 and panel 16 but are not located in foam 58. Porter discloses forming a "wiring chase" in foam merely by removing pre-cut strips of foam in the field at the job site. The wiring chase is thus a space formed in the foam as a channel upon removal of the pre-cut foam strips. As such, Porter has no need for, and in fact does not disclose use of, an additional conduit routed through the foam for electrical wires. Balla-Goddard in view of Porter would have thus failed to render obvious the prefabricated building component of claim 56 comprising "at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds . . . said conduit." For at least this additional reason, the Board is urged to reverse the rejection of claim 56.

III. Summary Conclusions

Accordingly, it is submitted that the 35 U. S. C. § 103 rejections of claims 24-56 are erroneous. The Board is thus urged to reverse those rejections. Such action is respectfully requested.

Respectfully submitted,

BARNES & THORNBURG



John H. Allie
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703283

CLAIMS APPENDIX

24. A pre-fabricated wall panel usable with a door or window jamb with trim yet without jamb furring, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume;

said framing struts acting as at least part of a dam to help contain said insitu foam within said panel volume;

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches;

a jamb member adjacent at least one of said struts, said jamb having a jamb thickness;

a sheet of drywall having a drywall thickness and adjacent said interior facing sheet, said drywall having an interior surface;

a trim piece; and,

wherein said jamb thickness is substantially equal to the sum of said overall panel thickness and said drywall thickness, such that said jamb is substantially flush therewith for said trim piece to be mounted flush across the jamb and drywall without the use of furring.

25. The pre-fabricated wall panel of claim 24 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

26. The pre-fabricated wall panel of claim 25 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

27. The pre-fabricated wall panel of claim 26 and further comprising a window mounted in said window opening; said-window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

28. The pre-fabricated wall panel of claim 27 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

29. The pre-fabricated wall panel of claim 28 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

30. The pre-fabricated wall panel of claim 29 wherein said first side panel and said second side panel are made from wood-based material.

31. The pre-fabricated wall panel of claim 30 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

32. The pre-fabricated wall panel of claim 31 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches.

33. The pre-fabricated wall panel of claim 32 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

34. The pre-fabricated wall panel of claim 24 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

35. The pre-fabricated wall panel of claim 34 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

36. The pre-fabricated wall panel of claim 24 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

37. The pre-fabricated wall panel of claim 24 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

38. The pre-fabricated wall panel of claim 24 wherein said first side panel and said second side panel are made from wood-based material.

39. The pre-fabricated wall panel of claim 24 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

40. The pre-fabricated wall panel of claim 24 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches.

41. The pre-fabricated wall panel of claim 24 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

42. The pre-fabricated wall panel of claim 24 wherein said jamb has a thickness of 4 9/16 inches and said drywall has a thickness of ½ inch.

43. The pre-fabricated wall panel of claim 24 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick OSB.

44. pre-fabricated wall panel usable with a sheet of drywall, a door or window jamb adjacent the panel, and a trim piece, the jamb having a jamb thickness, the sheet of drywall having a drywall thickness, and the jamb member securable thereto with the trim piece to be mounted flush across the jamb and drywall without jamb furring, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume;

said framing struts acting as at least part of a dam to help contain said insitu foam within said panel volume;

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches;

wherein the jamb thickness is adapted to be assembled substantially flush to the panel and drywall without the use of furring.

45. The pre-fabricated wall panel of claim 44 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

46. The pre-fabricated wall panel of claim 45 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

47. The pre-fabricated wall panel of claim 45 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

48. The pre-fabricated wall panel of claim 45 wherein said first side panel and said second side panel are made from wood-based material.

49. The pre-fabricated wall panel of claim 45 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

50. The pre-fabricated wall panel of claim 45 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches.

51. The pre-fabricated wall panel of claim 45 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

52. The pre-fabricated wall panel of claim 44 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1 ½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick wood-based material.

53. A prefabricated building component, comprising:

a first sheet of generally rigid material having a first sheet perimeter;

a second sheet of generally rigid material having a second sheet perimeter, said second sheet is generally parallel to said first sheet;

a plurality of framing struts located between and spacing apart said first sheet and said second sheet to define a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches, said panel having an interior volume;

a window receiving frame formed in said panel and adapted to receive a window therein, said window receiving frame includes a plurality of window struts adapted to receive fasteners to anchor the window; and

a polymeric in-situ foam core substantially filling said interior volume.

54. The component of claim 53, which further comprises at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

55. The component of claim 54, wherein the first sheet, the second sheet, the plurality of framing struts and the plurality of window struts are fixtured during the substantial filling of the interior volume with said foam core.

56. A prefabricated building component, comprising:

a first sheet of generally rigid material having a first sheet perimeter;

a second sheet of generally rigid material having a second sheet perimeter, said second sheet is generally parallel to said first sheet;

a plurality of framing struts located between and spacing apart said first sheet and said second sheet to define a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches, said panel having an interior volume;

at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter; and

a polymeric in-situ foam core substantially filling said interior volume and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

EVIDENCE APPENDIX

1. The attached Declaration of Patrick Egan was filed on September 16, 2003 and entered in either the December 17, 2003 Office Action or the June 4, 2004 Office Action.

2. The attached Declaration of Mr. Dave Scheilder was filed on October 22, 2001 and entered in the February 15, 2002 Office Action.

3. The attached Declaration of Mr. Ray Micham was filed on October 22, 2001 and entered in the February 15, 2002 Office Action.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:	)	
	)	Before the Examiner
Patrick Egan	)	
	)	Nguyen, Chi Q.
Serial No.: 09/633,937	)	
	)	Group Art Unit 3637
Filed: August 8, 2000	)	
	)	Our Ref.: 20181-2
PRE-FABRICATED WALL PANELING	)	

DECLARATION OF PATRICK EGAN

I, Patrick Egan, hereby declare as follows:

1. I am the President of Thermocore Structural Insulated Panel Systems ("THERMOCORE"), which is the assignee of U. S. Patent Application No. 09/633, 937 ("EGAN APPLICATION"), attached as Exhibit A. THERMOCORE has been in the business of manufacturing and selling different types of prefabricated wall panel systems since at least as early as 1997.

2. I am the inventor in the EGAN APPLICATION and appreciated that there was a significant need for an improved prefabricated wall paneling system. This appreciation led to commercialization of a unique prefabricated wall paneling system (PANEL) associated with the EGAN APPLICATION and produced by THERMOCORE. The PANEL includes a variety of different configurations of panels that manifest themselves through prefabricated components with different features. The types of different configurations generally needed by a customer include, but are not limited to: a prefabricated panel with a framed window opening; a prefabricated panel with a framed door opening; a prefabricated panel with a

framed window opening and a framed door opening; a prefabricated panel with neither window or door opening. Further almost all of the different configurations for the PANEL has at least one electrical box included therewith. I am familiar with U. S. Patents and have performed a careful review of the EGAN APPLICATION and the PANEL. It is my opinion that many of the different configurations of the PANEL are covered by one or more of the pending claims as set forth in Exhibit B. More specifically, it is my opinion that Independent claims 24 and 44 cover a configuration of the PANEL having a window or door associated there with. Independent claim 53 covers a configuration of the PANEL associated with a window and independent claim 56 covers a PANEL associated with an electrical box.

3. During the 2000 calendar year, the PANEL was introduced to the market by THERMOCORE. THERMOCORE had total sales of 1.2 Million dollars (US $) during the 2000 calendar year and of that 30,000 dollars (US $) were attributed to the PANEL. Please note that the sales volume attributed to the PANEL was for all the different configurations. The PANEL was priced competitively with other prefabricated wall panels and sold in the United States to perspective homebuilders. Marketing for the PANEL during the 2000 calendar year was limited mainly to contacting three of the larger customers of THERMOCORE and introducing the PANEL, advertising on the THERMOCORE web site and placing a quarter-page advertisement in the trade journal, *Timber Homes Magazine*. THERMOCORE did not employ any salesman to sell the PANEL and no extraordinary efforts were made by THERMOCORE to market or promote the sale of the PANEL. More specifically, I performed the sales function for the PANEL while running THERMOCORE.

4. During the 2001 calendar year, THERMOCORE had total sales of 1.9 Million dollars (US $) and of that 285,000 dollars (US $) were attributed to the PANEL. Please note that the sales volume attributed to the PANEL was for all the different configurations. The PANEL was priced competitively with other prefabricated wall panels and sold in the United States to prospective homebuilders. Marketing for the PANEL during the 2001 calendar year was limited mainly to word of mouth, advertising on the THERMOCORE web site and placing a quarter page advertisement in the trade journal, *Timber Homes Magazine*. THERMOCORE did not employ any salesman beside myself to sell the PANEL, and no extraordinary efforts were made by THERMOCORE to market or promote the sale of the PANEL. As discussed above, I performed the sales function for the PANEL while running THERMOCORE. The growth in sales of the PANEL over the prior year sales of the PANEL was 255,000 dollars.

5. During the 2002 calendar year, THERMOCORE had total sales of 2,600,000 dollars (US $) and of that 545,000 dollars (US $) were attributed to the PANEL. Please note that the sales volume attributed to the PANEL was for all the different configurations. The PANEL was priced competitively with other prefabricated wall panels and sold in the United States to prospective homebuilders. Marketing for the PANEL during the 2002 calendar year was limited mainly to word of mouth, advertising on the THERMOCORE web site and placing a quarter page advertisement in the trade journal, *Timber Homes Magazine*. THERMOCORE did not employ any salesman to sell the PANEL, and no extraordinary efforts were made by THERMOCORE to market or promote the sale of the PANEL. As discussed above, I performed the sales function for the PANEL while running THERMOCORE. The growth in sales of the PANEL over the prior year sales of the PANEL was 260,000 dollars

6. Through the second quarter of calendar year 2003, THERMOCORE had total sales of 1,400,000 dollars (US $) and of that 600,000 dollars (US $) are attributed to the PANEL. Please note that the sales volume attributed to the PANEL was for all the different configurations. The PANEL is priced competitively with other prefabricated wall panels and sold in the United States to prospective homebuilders. Marketing for the PANEL through the second quarter of calendar year 2003 has so far been limited mainly to word of mouth, advertising on the THERMOCORE web site, and placing a quarter page advertisement in the trade journal, *Timber Homes Magazine*. THERMOCORE did not employ any salesman to sell the PANEL and no extraordinary efforts were made by THERMOCORE to market or promote the sale of the PANEL. As discussed above, I performed the sales function for the PANEL while running THERMOCORE. The growth in sales of the PANEL up to the second quarter of the present calendar year represents a 55,000-dollar increase over sales of the PANEL for the entire calendar year 2002.

7. The commercial success of the PANEL is not significantly attributable to any unusual or excessive marketing or advertising by THERMOCORE. While THERMOCORE does tout the advantages of the PANEL, it has not undertaken any unusual or excessive advertising expenditure. Indeed, often times the PANEL sells itself with THERMOCORE receiving unsolicited requests from prospective customers to buy the PANEL which are, based on my understanding, from word of mouth success stories by other building contractors that are satisfied customers.

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

9/15/2003
Date

Patrick Egan

Exhibit A

PRE-FABRICATED WALL PANELING

BACKGROUND OF THE INVENTION

This invention relates generally to prefabricated wall paneling and building assemblies made therefrom, and more specifically to such paneling having polymeric in-situ foam core located therein.

In addition to conventional stick framing, a variety of pre-fabricated wall panel structures exist in the prior art to take advantage of the benefits of pre-fabricated wall paneling such as factory controlled assembly, quality and labor savings in the field when assembling a building such as a home or other structure. Examples of such prior devices are set forth in U.S. Patent Nos. 4,109,436 by Berloty; 4,628,650 by Parker; 5,353,560 by Heydon; and 5,765,330 by Richard.

The prior art also includes pre-fabricated wall panels sold by the applicant which are substantially the same as the invention disclosed and claimed herein except that the struts are made of standard 2 inch by 4 inch nominal lumber (i.e., 1½ inch by 3½ inch actual cross-sectional dimension). As such, the overall panel thickness was approximately 4½ inches. The present invention takes advantage of these prior art advantages except that the overall panel thickness is only 4 inches total, including the struts and the two 2 generally rigid sheets on either side of the struts. The present invention provides excellent strength and thermal insulation characteristics while being a thinner and specialized thickness compared to its predecessor product. This facilitates faster and more cost effective installation because standardized window and door jambs may be mounted in predetermined locations, pre-fabricated into the panel and/or

building assembly while being flush with the panel when a sheet of drywall is secured thereto. Other cost and transportation efficiencies result as well.

SUMMARY OF THE INVENTION

The invention is set forth literally in the claims. It is not to be embellished or narrowed by expressed or inferred advantages, functionalities for features in the specification. Mindful of this, the invention generally can be summarized as a pre-fabricated wall panel. The wall panel comprises a first, exterior facing sheet and a second interior-facing sheet spaced apart a strut thickness. At least two (2), and often times more, framing struts are located between the sheets and define a panel volume between the sheets. A polymeric in-situ foam core is located in and substantially fills the panel volume. The overall panel thickness is four (4) inches.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view of a representative sample of a panel made according to the present invention;

FIG 1A is a cross-sectional view along lines 1A-1A of FIG. 1;

FIG 1B is a sectional view taken along line 1B-1B of FIG. 1;

FIG. 1C is an enlarged view of portion of FIG. 1A;

FIG. 2 is a side view of the device of FIG. 1;

FIG. 3 is a top view of the device of FIG. 1;

FIG. 4 is a bottom view of the device of FIG. 1;

FIG. 5 is a partial top view of one optional type of joining section between wall panels according to the present invention;

FIG. 6 is a top sectional view of the present invention with a door, door jamb, drywall and trim;

FIG. 7 is a top cross-sectional view of the present invention with a window, window jamb, drywall and trim; and,

FIG. 8 is a top cross-sectional view of the present invention showing one version of a corner butt joint between two panels.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, and alterations and modifications in the illustrated device and method, and further applications of the principles of the invention as illustrated therein are herein contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring to the drawing figures, and in particular drawing figures 1-5, panel 21 according the present invention is provided. The panel has a first, exterior-facing sheet 23 of a generally rigid material, and further has a second, interior-facing sheet 25 of a generally rigid material. Sheets 23 and 25 preferably are made from a wood-based material, for example plywood or OSB board, the later being generally preferable. Such sheets each have a thickness, most preferably 7/16 inches thick, but ordinarily in the range of about half an inch in thickness. Such thickness is illustrated as thicknesses T_1 and T_2 in FIG. 1C. The sheets 23 and 25 are generally parallel to each other, being spaced apart by framing struts located between the sheets. There are typically at least two, and usually more framing struts per panel, these framing struts are illustrated in the drawings as struts 27a, 27b, 27c, 27d, 27e, 27f, 27g, 27h, 27i and 27j. The struts may follow the entire perimeter of sheets 23 and 25. Such framing struts preferably have a strut thickness T_3 (see FIG. 1C) of 3 3/16 inches in actual dimension, although they may be within about ¼ inch, and preferably a 1/8 inch range, plus or minus, of that dimension (e.g., T_3 = 3 inches). Typically, the sheets 23 and 27 are secured to the framing struts by nails, screws or other fastener. The spaces formed in the panel volume line between sheets 23 and 24 and the framing struts. This

volume, while initially air, is substantially filled with a polymeric in-situ foam core 29. Preferably, this foam cores is a rigid foam preferred in-situ, and preferably comprises polyurethane. It is understood that other foams having suitable insulation properties, and preferably rigid structural properties may be used, including other polymers as well as blends and/or copolymers with polyurethane. In practice, applicant has used BASF brand autofroth spray polyurethane including BASF 102B9453 resin and 9300A isocyannate blended together. This polyurethane foam expands in-situ in the panel volume, contacting the interior surfaces of sheets 23 and 25 as well as the framing struts, which are typically made of wood. When the foam cures, it adheres to such members, further integrating their strength and adding to the non-compressibility of the overall panel structure. Moreover, the foam servers to greatly enhance the thermal insulation characteristics. Applicant has found that with the inventive panel being 4 inches thick, the thermal insulation qualities are in excessive in an R value of 15, in excess of an R value of 20, and actually achieve an R value through the foamed panel of about 25.

Preferably the foam to make core 29 is injected into the panel volume after the first and second sheets are secured to the strut members. The strut members act as dams, either completely enclosing the panel volume, or alternatively partially enclose the panel volume. In the case of a partial enclosure, temporary dams are held in place to prevent the foam from oozing out until it cures. In either event, the foam is injected around the perimeter under pressure, typically in series, typically at injection openings in the struts approximately ever 4 feet around the entire perimeter. This is done while the panels are held in compression horizontally under a large press with medal beams so as to confine expansive deflection of the panel sheets.

The in-situ foaming is often done with electrical boxes, such as electrical box 31 and 35, and electrical conduit connecting such boxes, such as conduit 33 in place. Such electrical boxes

and conduits are prefabricated into the panel mounted flush with interior sheet 25. Such mounting is done prior to injection of the in-situ foam. In this way, the in-situ foam surrounds such electrical boxes and conduits, further mechanically holding them in place and providing thorough insulation around such parts. Electrical boxes are typically placed, like the other features of the present invention, as a function of a floor plan design predetermining the location of such features. The electrical conduit extends to a perimeter access 37 (see FIG. 1) whereby on the job site electricians can access such conduit to wire electrical boxes appropriately to wall outlets, light switches and the like.

As seen in FIG. 1, one optional configuration of the present wall panel is to have a prefabricated window opening, such as window opening 39 in the panel. One or more such window openings can be made, and they may be made of any shape correspond to the window design for that part of the wall. As illustrated in FIG.1, window opening 39 is partially defined by framing struts 27a, 27b, 27c, and 27d. This provides a structural member in which to mount the window jambs. They also act as dams that contain the in-situ foam from leaking out into the window opening 39. The window opening is filled with a window 31 (see FIG. 7), typically provided from a window vendor. The window has window jambs 42 having a thickness T_5. Many off the shelf window jambs have a thickness T_5 of 4 9/16 inches as a standard dimension. With the present invention having an overall panel thickness of approximately 4 inches (plus or minus a quarter inch), and more preferably 4 1/16 inches in the most preferred form, when the drywall sheet 43 is secured to the interior sheet 25, the overall thickness of the wall panel in combination with the ½ inch drywall is either exactly 4 9/16 inches thick, or closely approaches that dimension. In this way, with a finished assembly, the window jamb 42 is flush with the exterior of surface exterior sheet 23 and with the interior surface of the drywall 43. One

advantage of this is that trim pieces 47a and 47b are conveniently and cost effectively mounted flush across the jamb 42 and the drywall as well as along the outside surface of the assembly as illustrated in FIG. 7. This is accomplished while providing thermal characteristics described above and a structural wall that is extremely strong. This is done with a thinner wall assembly, thereby facilitating a prefabricated wall panel that may be transported in less total volume on a truck than with a thicker prefabricated wall panel.

Similarly, FIG. 6 illustrates the present invention in connection with a door jamb 46 of a door 45 rather than a window assembly. This may be created by a cut opening in a wall panel, but more commonly curves at the butt end of 2 wall panels on either side of the door. As with window jamb thickness T_5, the door jamb 46 has a thickness T_6 which often is an industry standard 4 9/16 inches. As such, in combination with the half-inch thickness of the drywall sheet 43, wall panel thickness T_4 (see FIG. 1C) is most ideally 4 1/16 inches, or at least 1-quarter inch plus or minus 1-quarter inch. In this way, the advantages discussed above may likewise be utilized, including the cost effective flush mounting of trim pieces 47c and 47d.

It should be noted that the drawing illustrations set forth and described are mere examples of the present invention. Various types of other arrangements of the foam core, first and second sheets and strut members may be adapted to achieve advantages of the present invention.

Merely by way of example, with reference to FIG. 5, an arrangement is illustrated two wall panels 21 and 21a may be joined together. In particular, panel 21 includes along a first vertical side edge a male projection 49. This male projection member is adapted to project into corresponding female reception recess 51 on adjacent panel 21a. As can be seen in FIGS. 3 and 3, a single panel may have a male member at one end and a female member at the opposite vertical side edge to facilitate interconnection of multiple panels along a wall. Note further that

one optional, preferred mode of creating this connection, and in particular of creating projection member 49 is to have it formed by two projection flanges 49a and 49b (see FIG. 5). Preferably, these are cut from OSB or plywood and are lap jointed and secured along the inner edges sheets 23 and 25 secured thereto. Also, preferably these are left hollow so that in-situ foam may occupy the inner part of this male member as well. In this way, the finished assembly when the male projection 49 is inserted into the female portion 51, although the overall thickness is approximately 4 inches as described above, it occurs with insulating foam along all parts of the wall. In this way, there are no cold spots allowing thermal leakage. Alternatively, the end arrangements may be made including having the strut member flush with the perimeter edge of the paneling such as strut member 27j (see FIG. 8). Alternatively, as also seen in FIG. 8, selected wall panels may be formed with no internal strut member along a given edge of the wall panel, instead being formed with the foam in-situ as a temporary dam that is removed after the foam cures. Other approaches may be to modify preferred cross-sectional geometry of the framing struts. Although the preferred cross-sectional dimension of such struts is exactly 1 ½ inches by 3 3/16 inches, it may be modified within tolerance of this such as being 1 ½ inch by 3 inches. Moreover, it may be formed by a larger cross-sectional piece of wood cut, such as by rabbetting. In this way, a generally L-shaped piece of wood is formed with a rabbet having a cut thickness corresponding to either sheet 23 or 25 sitting within the rabbet, while nevertheless maintaining the interior spacing between such sheets (thickness T_3) at distances to achieve the dimensions preferred in the present invention with the overall wall thickness T_4. For example, a rabbet could be cut three quarter inch by 7/16 inch to accommodate a 7/16 inch OSB board.

Another optional feature is the formation of a bottom female recess 53 (see FIG. 2) formed between sheets 23 and 25 on either side of a recess on the bottom perimeter edge in the foam 29.

This recess ordinarily has a vertical dimension of 1 ½ inches and a horizontal dimension identical to the spacing T_3 between the sheets. This recess is used in onsite assembly of the wall panels to be built into a building assembly. Typically, after the floor structure is build, footers, typically made of wood (dimension the same as the struts in the present invention) are fastened to the floor. Thereafter, wall panels are located on such footers with recess 53 sliding over such footers for securement thereto. This helps control the layout of wall panels and provide a secure basis for attachment together with the remainder of the structure.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

What is claimed is:

1. A pre-fabricated wall panel, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus ¼ inch.

2. The pre-fabricated wall panel of claim 1 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

3. The pre-fabricated wall panel of claim 2 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

4. The pre-fabricated wall panel of claim 3 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

5. The pre-fabricated wall panel of claim 4 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

6. The pre-fabricated wall panel of claim 5 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

7. The pre-fabricated wall panel of claim 6 wherein said first side panel and said second side panel are made from wood-based material.

8. The pre-fabricated wall panel of claim 7 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

9. The pre-fabricated wall panel of claim 8 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

10. The pre-fabricated wall panel of claim 9 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

11. The pre-fabricated wall panel of claim 1 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

12. The pre-fabricated wall panel of claim 11 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

13. The pre-fabricated wall panel of claim 1 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

14. The pre-fabricated wall panel of claim 1 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

15. The pre-fabricated wall panel of claim 1 wherein said first side panel and said second side panel are made from wood-based material.

16. The pre-fabricated wall panel of claim 1 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

17. The pre-fabricated wall panel of claim 1 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

18. The pre-fabricated wall panel of claim 1 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

19. A building assembly, comprising:

at least two pre-fabricated wall panels connected to each other, each of said wall panels including

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus ¼ inch;

a jamb member secured adjacent at least one of said struts; and,

sheets of drywall secured adjacent said seconds panels, said drywall having an interior surface that is flush with a jamb member interior edge.

20. The building assembly of claim 19 wherein said jamb has a thickness of 4 9/16 inches and said drywall has a thickness of ½ inch.

21. The building assembly of claim 20 wherein one of said panels has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

22. The building assembly of claim 21 wherein said male projection comprises two members lap jointed along an inside surface of corresponding first and second facing sheets, and wherein polymeric in-situ foam is located between said two lap jointed members.

23. The building assembly of claim 21 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick OSB.

ABSTRACT

A prefabricated wall panel is disclosed. The panel has a first exterior facing sheet of plywood or OSB and the second interior facing sheet of plywood or OSB. Framing struts are located between the sheets to secured thereto to define a panel volume. A polymeric in-situ foam core is formed inside such panel volume. The overall panel thickness is 4 inches, plus or minus 1 quarter inch. In the finished wall assembly, thickness in combination with a sheet of drywall allows flush mounting of door jambs and window jambs, including flush mounting of trim pieces. The panel has an R value in excess of R20.

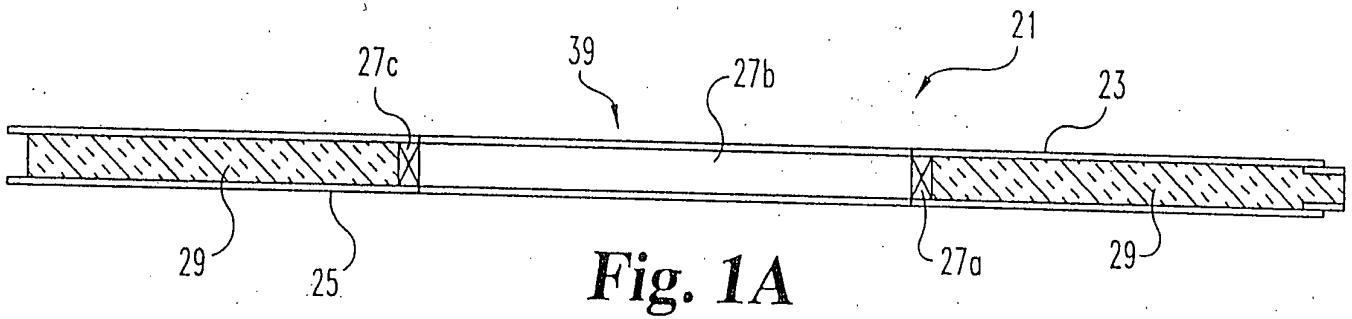


Fig. 1A

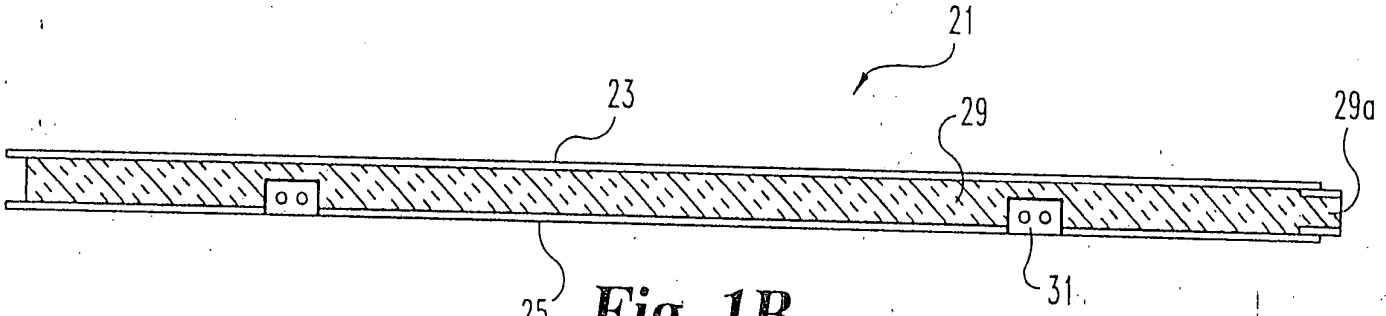


Fig. 1B

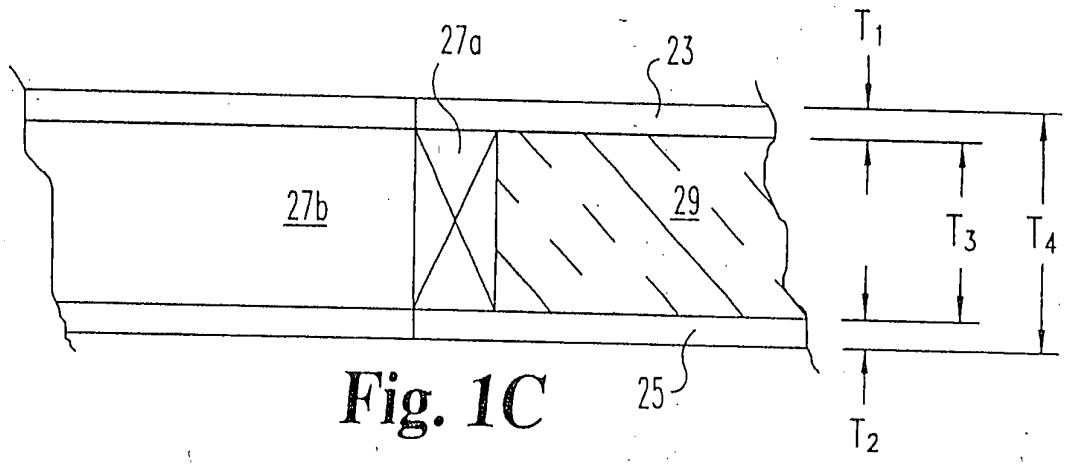


Fig. 1C

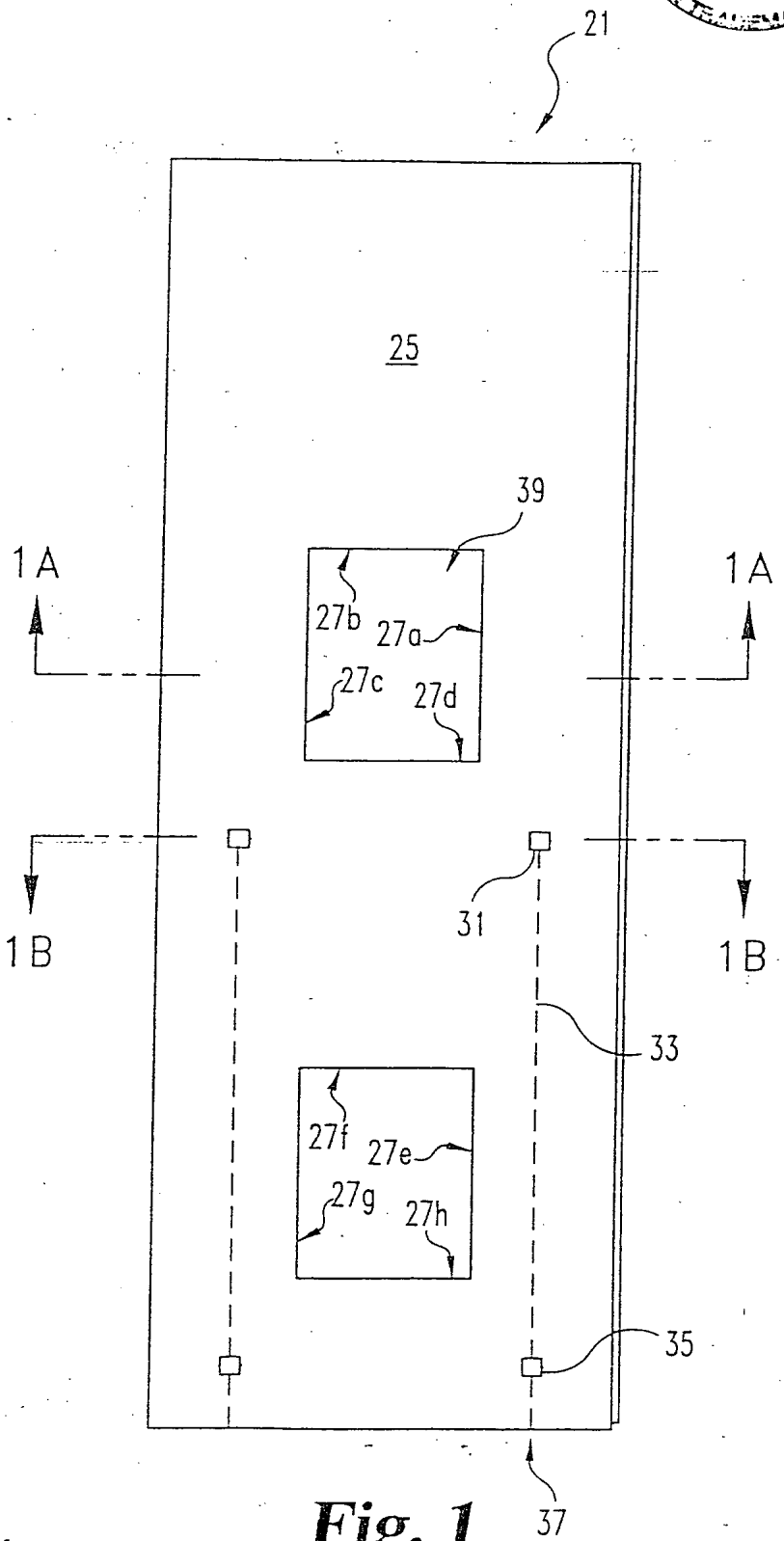


Fig. 1

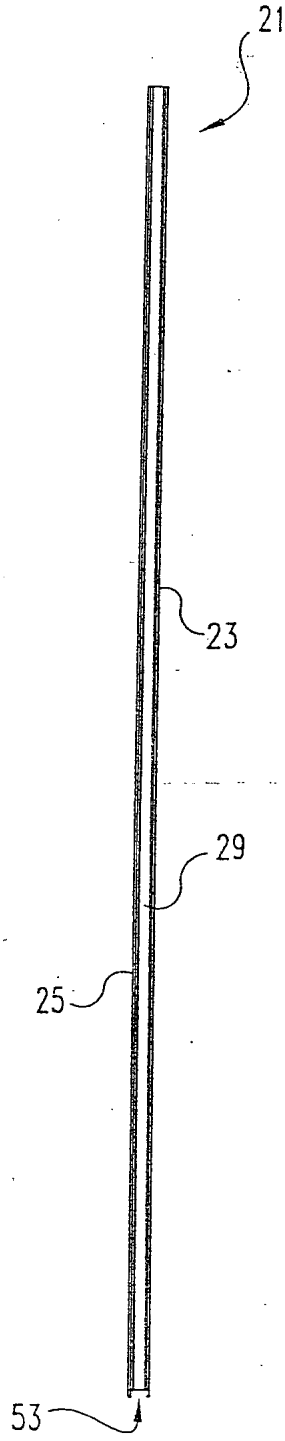


Fig. 2

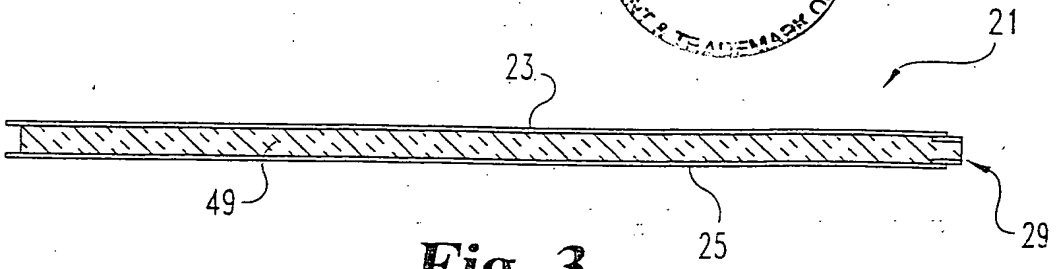


Fig. 3

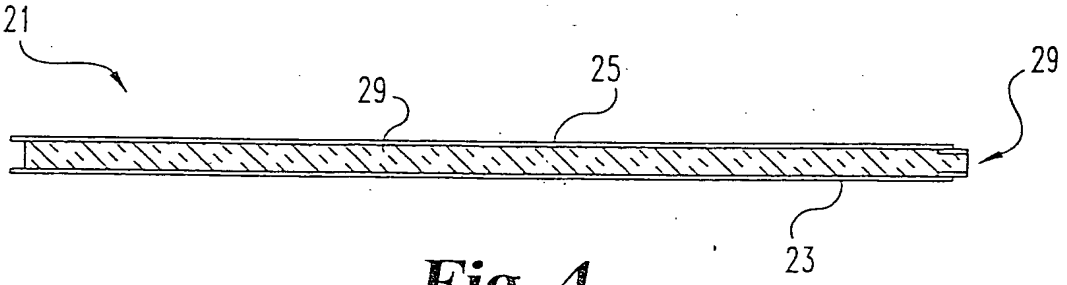


Fig. 4

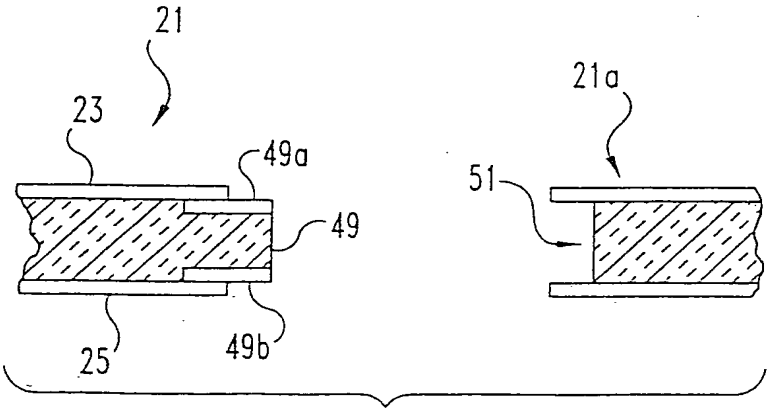


Fig. 5

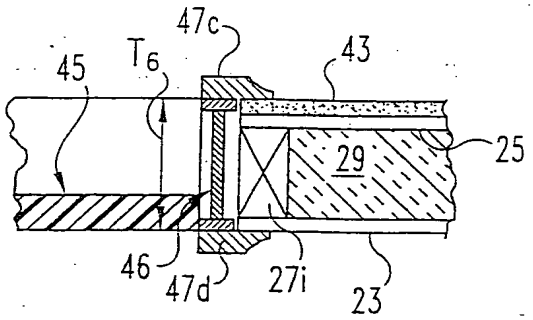


Fig. 6

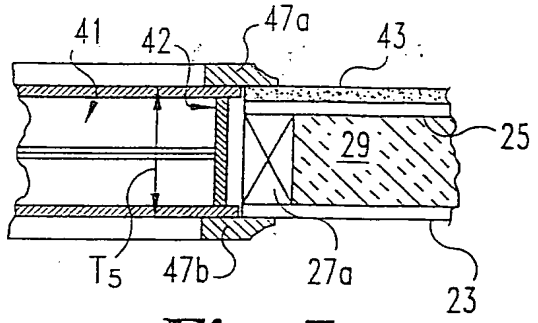


Fig. 7

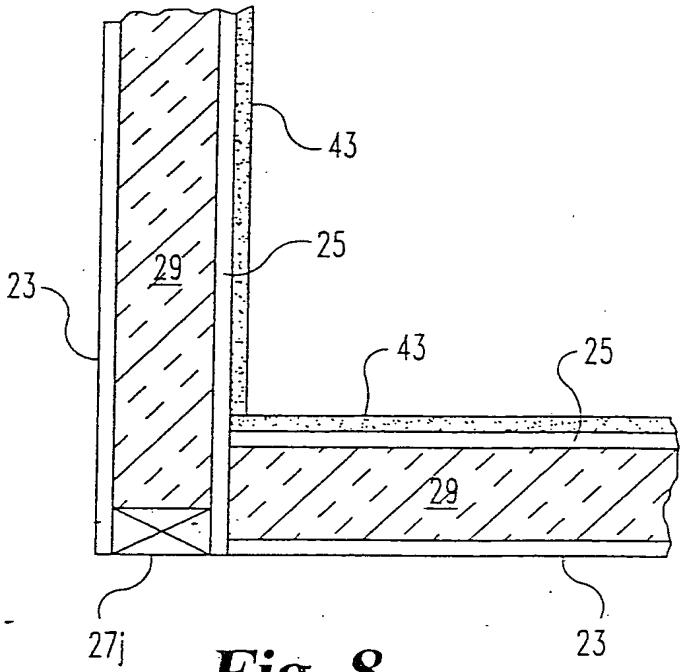


Fig. 8

Exhibit B

24. A pre-fabricated wall panel usable with a door or window jamb with trim yet without jamb furring, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume;

said framing struts acting as at least part of a dam to help contain said in-situ foam within said panel volume;

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches;

a jamb member adjacent at least one of said struts, said jamb having a jamb thickness;

a sheet of drywall having a drywall thickness and adjacent said interior facing sheet, said drywall having an interior surface;

a trim piece; and,

wherein said jamb thickness is substantially equal to the sum of said overall panel thickness and said drywall thickness, such that said jamb is substantially flush therewith for said trim piece to be mounted flush across the jamb and drywall without the use of furring.

25. The pre-fabricated wall panel of claim 24 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

26. The pre-fabricated wall panel of claim 25 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

27. The pre-fabricated wall panel of claim 26 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

28. The pre-fabricated wall panel of claim 27 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

29. The pre-fabricated wall panel of claim 28 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

30. The pre-fabricated wall panel of claim 29 wherein said first side panel and said second side panel are made from wood-based material.

31. The pre-fabricated wall panel of claim 30 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

32. The pre-fabricated wall panel of claim 31 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

33. The pre-fabricated wall panel of claim 32 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

34. The pre-fabricated wall panel of claim 24 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

35. The pre-fabricated wall panel of claim 34 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

36. The pre-fabricated wall panel of claim 24 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

37. The pre-fabricated wall panel of claim 24 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

38. The pre-fabricated wall panel of claim 24 wherein said first side panel and said second side panel are made from wood-based material.

39. The pre-fabricated wall panel of claim 24 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

40. The pre-fabricated wall panel of claim 24 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

41. The pre-fabricated wall panel of claim 24 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

42. The pre-fabricated wall panel of claim 24 wherein said jamb has a thickness of 4 9/16 inches and said drywall has a thickness of ½ inch.

43. The pre-fabricated wall panel of claim 24 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick OSB.

44. A pre-fabricated wall panel usable with a sheet of drywall, a door or window jamb adjacent the panel, and a trim piece, the jamb having a jamb thickness, the sheet of drywall having a drywall thickness, and the jamb member securable thereto with the trim piece to be mounted flush across the jamb and drywall without jamb furring, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam ore located in and substantially filling said panel volume;

said framing struts acting as at least part of a dam to help contain said in-situ foam within said panel volume;

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being between approximately 3 ¾ inches and 4 ¼ inches;

wherein the jamb thickness may be assembled substantially flush to the panel and drywall without the use of furring.

45. The pre-fabricated wall panel of claim 44 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

46. The pre-fabricated wall panel of claim 45 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

47. The pre-fabricated wall panel of claim 45 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

48. The pre-fabricated wall panel of claim 45 wherein said first side panel and said second side panel are made from wood-based material.

49. The pre-fabricated wall panel of claim 45 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

50. The pre-fabricated wall panel of claim 45 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

51. The pre-fabricated wall panel of claim 45 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

52. The pre-fabricated wall panel of claim 44 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick wood-based material.

53. A prefabricated building component, comprising:

a first sheet of generally rigid material having a first sheet perimeter;

a second sheet of generally rigid material having a second sheet perimeter, said second sheet is generally parallel to said first sheet;

a plurality of framing struts located between and spacing apart said first sheet and said second sheet to define a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches, said panel having an interior volume;

a window receiving frame formed in said panel and adapted to receive a window therein, said window receiving frame includes a plurality of window struts adapted to receive fasteners to anchor the window; and

a polymeric in-situ foam core substantially filling said interior volume.

54. The component of claim 53, which further comprises at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

55. The component of claim 54, wherein the first sheet, the second sheet, the plurality of framing struts and the plurality of window struts are fixtured during the substantial filling of the interior volume with said foam core.

56. A prefabricated building component, comprising:

a first sheet of generally rigid material having a first sheet perimeter;

a second sheet of generally rigid material having a second sheet perimeter, said second sheet is generally parallel to said first sheet;

a plurality of framing struts located between and spacing apart said first sheet and said second sheet to define a panel having an exterior thickness between approximately 3 ¾ inches and 4 ¼ inches, said panel having an interior volume;

at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter;and

a polymeric in-situ foam core substantially filling said interior volume and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

20181-2:DJL:lmk:142487

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:	)	Attorney Docket No. 20181-2
	)	
Egan, Patrick	)	
	)	
PRE-FABRICATED WALL PANELING	)	Group Art Unit 3635

DECLARATION OF DAVE SHEIDLER

I, Dave Sheidler, hereby swear and affirm as follows:

1. I am Project Manager for Heartwood Timber Frames in Swanton, Ohio. Our business is framing buildings, typically houses, with timber frames. As a part of this work, we also frame houses with pre-fabricated wall paneling.

2. In particular, our Company has purchased and used pre-fabricated wall paneling from Thermocore Panel Systems located in Indiana and operated by Mr. Pat Egan. Such panel systems are of the type illustrated in Drawings Figs. 1A-8 and set forth in claims 1-23 attached here as Exhibit A. In particular, those systems that we have purchased and used include ones that have a wall panel thickness, shown as thickness T_4 in attached Drawing Fig. 1C, of 4 inches (hereafter " 4" panel").

3. Prior to Pat Egan's Thermocore 4" panel, I had never seen a 4" pre-fabricated wall panel before.

4. I consider the 4" wall panel to be a fabulous invention.

5. The 4" wall panel invention, as compared to previous stick built frame construction and compared to previous conventional wall paneling systems having, for example 4 ½" or 5 ½" thickness, leads to significant cost savings to the subcontractor which may be passed on to the homeowner.

6. For example, the 4" panel invention reduces, if not completely eliminates, the need for the costs of carpenters furring the jamb on windows and doors. I estimate this cost saving alone as approximately $20 per opening, depending on variables. This $20 per opening estimate includes cost for materials and labor. The amount may be less, but also may be more. For example, I would estimate the cost savings for a typical door is about $20 per door attributable to the 4" panel invention. A window larger than a door, in my estimation, would result in greater cost savings.

7. Moreover, a window that is located high off the ground would also enjoy greater cost savings due to the 4" panel. For example, under prior systems a carpenter would have to build scaffolding and/or use ladder systems to install the furring for such high elevation window jamb. This required extra time and labor, which means higher costs in construction, to say nothing of safety benefits of not having carpenters operating on scaffolding. The 4" panel eliminates the need for this.

8. In my experience, prior to Pat Egan's 4" panel, the cost of installing extension jambs for doors and windows in the industry was a given --- it was just the way it was without solution.

9. Prior to the 4" paneling, several of our customers, in reviewing cost bids, focused in on the cost of such extension jambs due to wall panel thickness. While the homeowners, and our company, had recognized the cost, in my experience nobody before Pat Egan's 4" panel had recognized his solution. The response to such homeowner was "that is just the cost of a carpenter furring out the jambs, that's just the way it is."

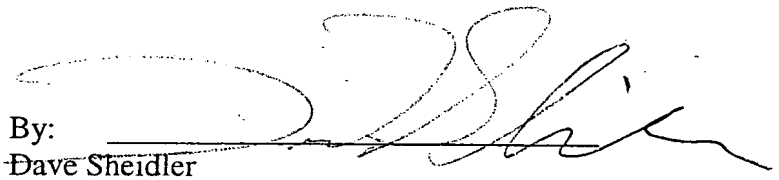
10. Pat Egan's 4" wall panel provided a simple but powerful solution to this problem.

11. Because of these benefits, our company has gone exclusively to Thermocore's 4" panel invention as our standard pre-fabricated wall paneling product.

12. Other than being a satisfied customer, I have no financial interest in Thermocore or its patent application.

13. I, being hereby warned that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, declare that the facts set forth in this Declaration are true; all statements made of my own knowledge are true and all statements made on information and belief are believed to be true.

OCTOBER 2 2001
Date of Signature

By: 
Dave Sheidler

What is claimed is:

1. A pre-fabricated wall panel, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus ¼ inch.

2. The pre-fabricated wall panel of claim 1 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

3. The pre-fabricated wall panel of claim 2 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

EXHIBIT

A

4. The pre-fabricated wall panel of claim 3 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

5. The pre-fabricated wall panel of claim 4 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

6. The pre-fabricated wall panel of claim 5 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

7. The pre-fabricated wall panel of claim 6 wherein said first side panel and said second side panel are made from wood-based material.

8. The pre-fabricated wall panel of claim 7 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

9. The pre-fabricated wall panel of claim 8 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

10. The pre-fabricated wall panel of claim 9 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

11. The pre-fabricated wall panel of claim 1 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

12. The pre-fabricated wall panel of claim 11 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

13. The pre-fabricated wall panel of claim 1 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

14. The pre-fabricated wall panel of claim 1 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

15. The pre-fabricated wall panel of claim 1 wherein said first side panel and said second side panel are made from wood-based material.

16. The pre-fabricated wall panel of claim 1 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

17. The pre-fabricated wall panel of claim 1 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

18. The pre-fabricated wall panel of claim 1 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

19. A building assembly, comprising:

at least two pre-fabricated wall panels connected to each other, each of said wall panels including

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus ¼ inch;

a jamb member secured adjacent at least one of said struts; and,

sheets of drywall secured adjacent said seconds panels, said drywall having an interior surface that is flush with a jamb member interior edge.

20. The building assembly of claim 19 wherein said jamb has a thickness of 4 9/16 inches and said drywall has a thickness of ½ inch.

21. The building assembly of claim 20 wherein one of said panels has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

22. The building assembly of claim 21 wherein said male projection comprises two members lap jointed along an inside surface of corresponding first and

second facing sheets, and wherein polymeric in-situ foam is located between said two lap jointed members.

23. The building assembly of claim 21 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick OSB.

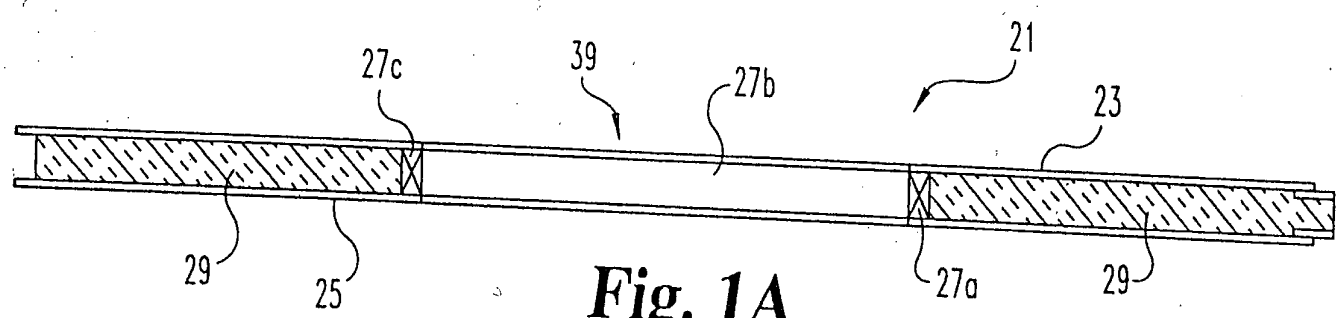


Fig. 1A

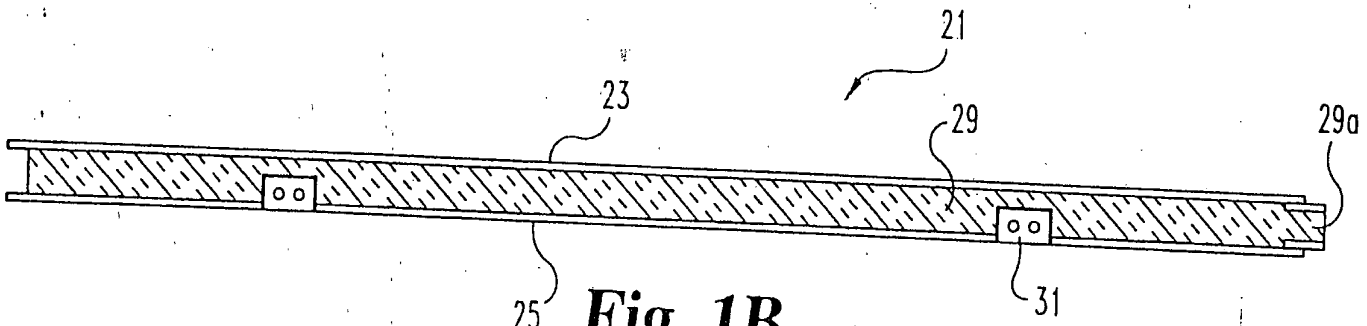


Fig. 1B

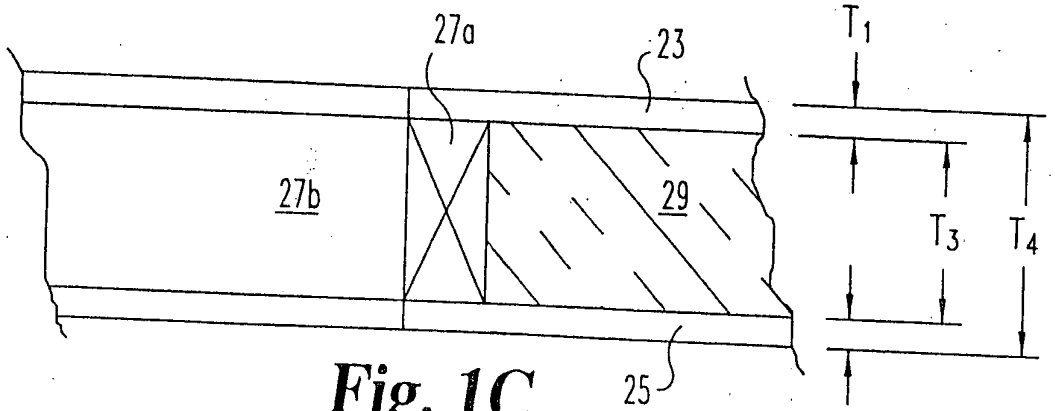


Fig. 1C

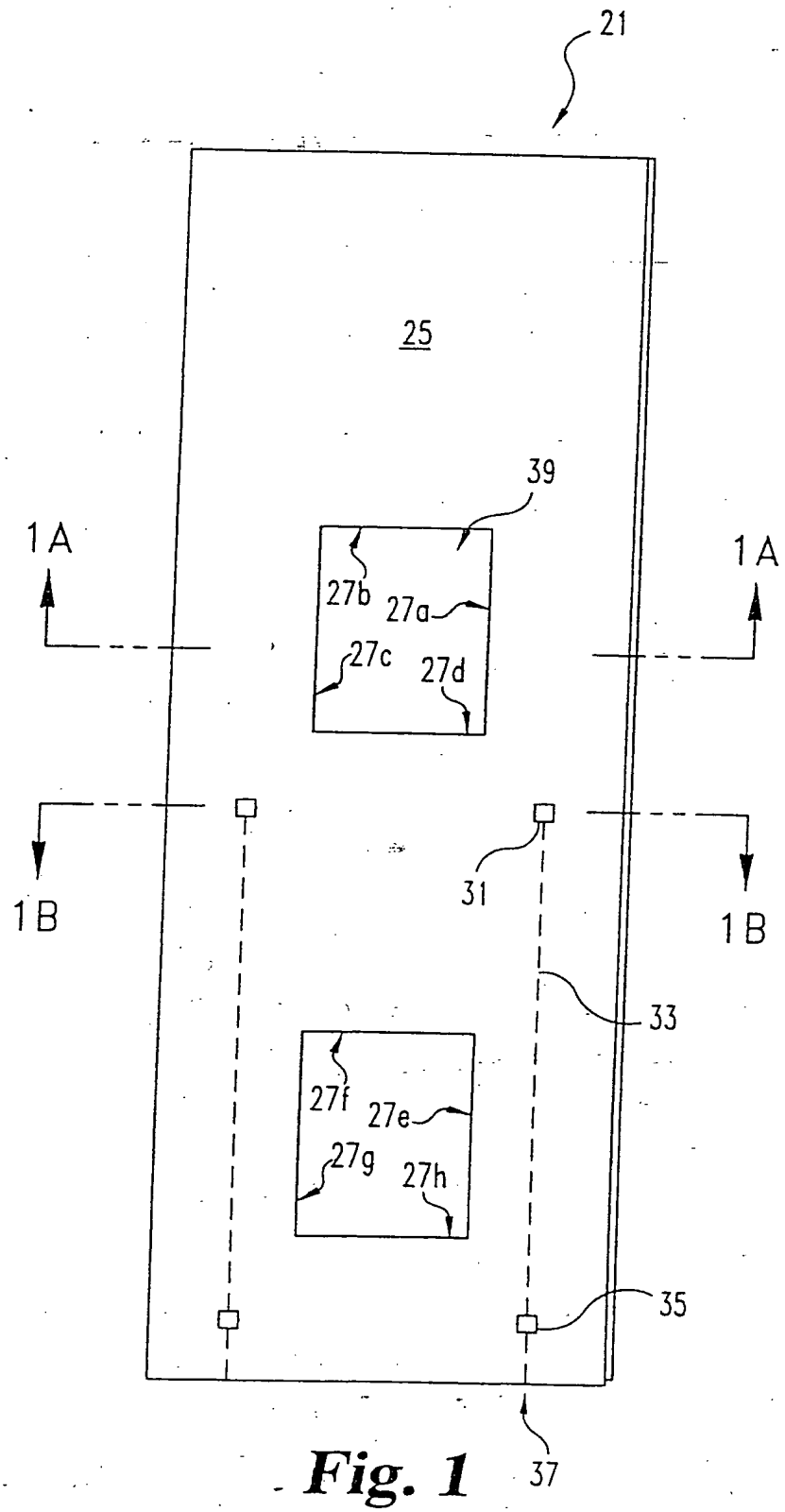


Fig. 1

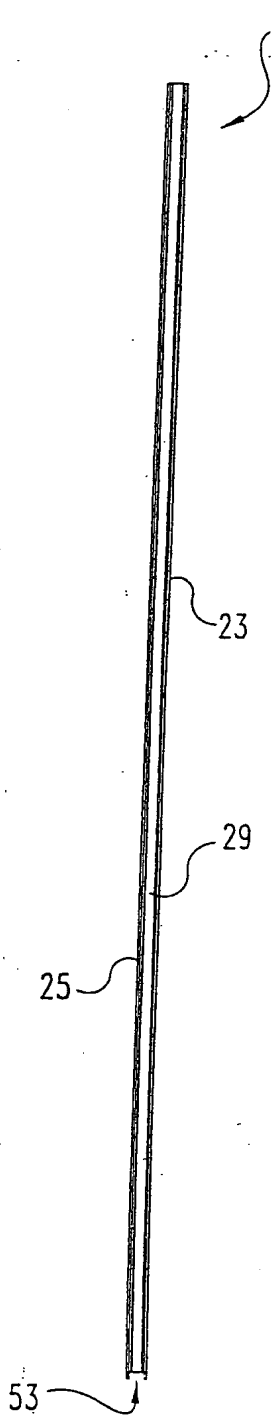


Fig. 2

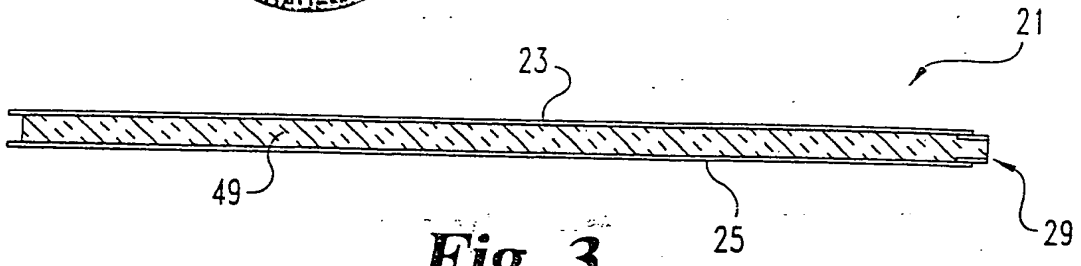


Fig. 3

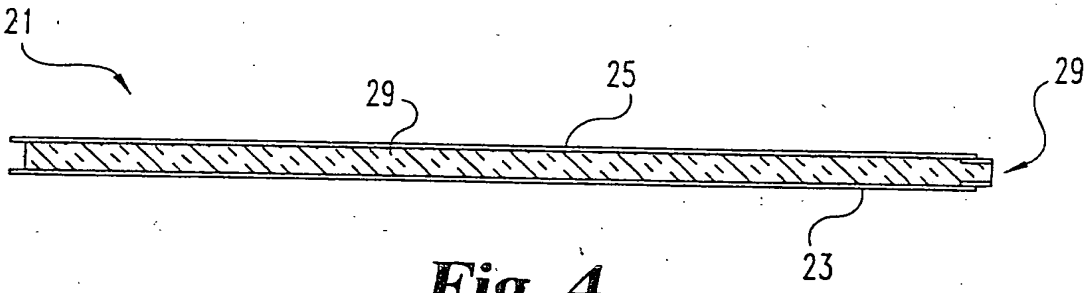


Fig. 4

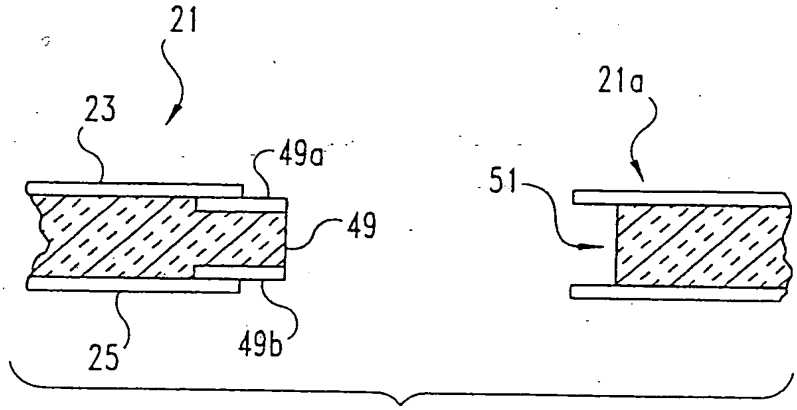


Fig. 5

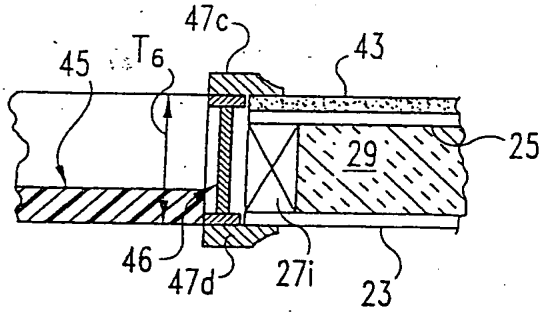


Fig. 6

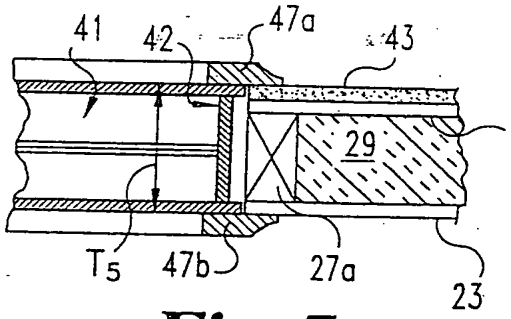


Fig. 7

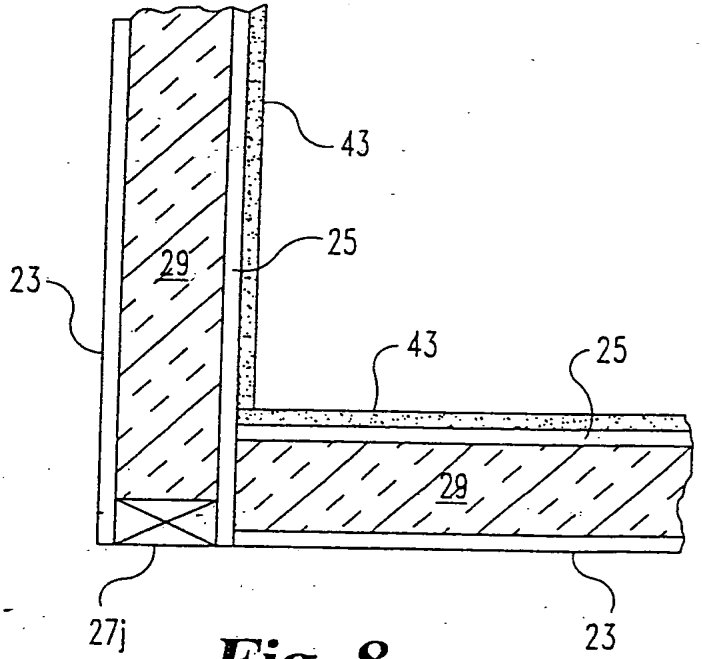


Fig. 8

20181-2:DJL:lmk:142512

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:	)	Attorney Docket No. 20181-2
	)	
Egan, Patrick	)	
	)	
PRE-FABRICATED WALL PANELING	)	Group Art Unit 3635

DECLARATION OF RAY MICHAM

I, Ray Micham, hereby swear and affirm as follows:

1. I am the former President of Heartwood Timber Frames in Swanton, Ohio. Our business was framing buildings, typically houses, with timber frames. As a part of this work, we also framed houses with pre-fabricated wall paneling.

2. In particular, our company purchased and used pre-fabricated wall paneling from Thermocore Panel Systems in Indiana and Mr. Pat Egan. Such panel systems are of the type illustrated in Drawings Figs. 1A-8 and set forth in claims 1-23 attached here as Exhibit A. In particular, I had experience with one house that we built with Thermocore's panel that had a wall panel thickness, shown as thickness T_4 in attached Drawing Fig. 1C, of 4 inches (hereafter " 4" panel"). Because of the cost savings and advantages of the 4" panel, I would never go back to the prior approach.

3. Prior to Pat Egan's Thermocore 4" panel, I had never seen a 4" pre-fabricated wall panel before.

4. I consider the 4" wall panel to be not obvious to a person of ordinary skill in this field considering pre-existing technology such as 4 ½" and 5 ½" panels.

5. The 4" wall panel invention, as compared to previous stick built frame construction and compared to previous conventional wall paneling systems having, for

example 4 ½" or 5 ½" thickness, leads to significant cost savings to the subcontractor which may be passed on to the homeowner.

6. The only downside to the 4" panel is that it has less R-value for insulation. This is outweighed by its benefits.

7. For example, the 4" panel invention reduces, if not completely eliminates, the need for the costs of carpenters furring the jamb on windows and doors. I estimate this cost saving alone as approximately $20 to $25 per door.

8. I consider Pat Egan's 4" panel to be very innovative.

9. Other than being a satisfied customer, I have no financial interest in Thermocore or its patent application.

10. I, being hereby warned that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, declare that the facts set forth in this Declaration are true; all statements made of my own knowledge are true and all statements made on information and belief are believed to be true.

10-22-01
Date of Signature

By: Ray Micham
Ray Micham

What is claimed is:

1. A pre-fabricated wall panel, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus ¼ inch.

2. The pre-fabricated wall panel of claim 1 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

3. The pre-fabricated wall panel of claim 2 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

EXHIBIT

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4. The pre-fabricated wall panel of claim 3 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

5. The pre-fabricated wall panel of claim 4 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

6. The pre-fabricated wall panel of claim 5 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

7. The pre-fabricated wall panel of claim 6 wherein said first side panel and said second side panel are made from wood-based material.

8. The pre-fabricated wall panel of claim 7 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

9. The pre-fabricated wall panel of claim 8 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

10. The pre-fabricated wall panel of claim 9 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

11. The pre-fabricated wall panel of claim 1 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

12. The pre-fabricated wall panel of claim 11 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

13. The pre-fabricated wall panel of claim 1 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

14. The pre-fabricated wall panel of claim 1 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

15. The pre-fabricated wall panel of claim 1 wherein said first side panel and said second side panel are made from wood-based material.

16. The pre-fabricated wall panel of claim 1 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

17. The pre-fabricated wall panel of claim 1 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

18. The pre-fabricated wall panel of claim 1 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

19. A building assembly, comprising:

at least two pre-fabricated wall panels connected to each other, each of said wall panels including

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus ¼ inch;

a jamb member secured adjacent at least one of said struts; and,

sheets of drywall secured adjacent said seconds panels, said drywall having an interior surface that is flush with a jamb member interior edge.

20. The building assembly of claim 19 wherein said jamb has a thickness of 4 9/16 inches and said drywall has a thickness of ½ inch.

21. The building assembly of claim 20 wherein one of said panels has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

22. The building assembly of claim 21 wherein said male projection comprises two members lap jointed along an inside surface of corresponding first and

second facing sheets, and wherein polymeric in-situ foam is located between said two lap jointed members.

23. The building assembly of claim 21 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick OSB.

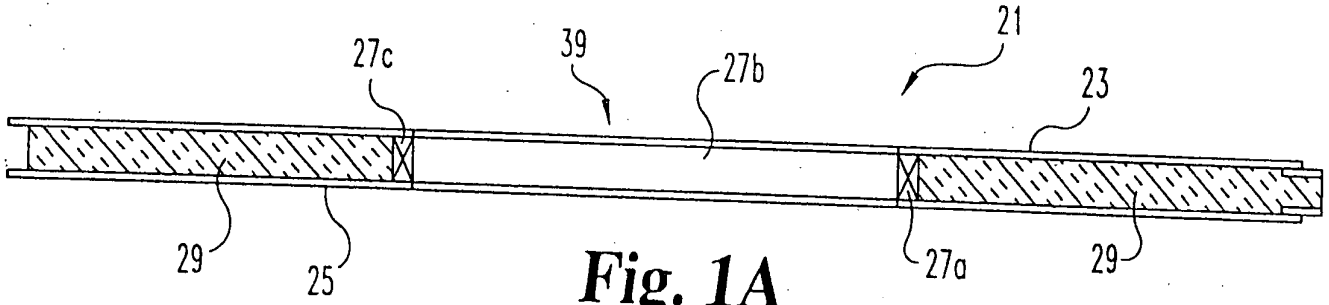

Fig. 1A

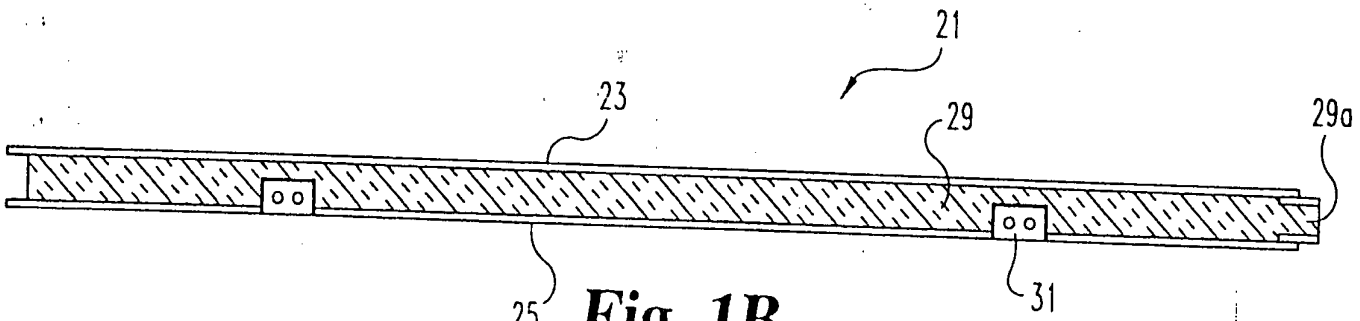

Fig. 1B

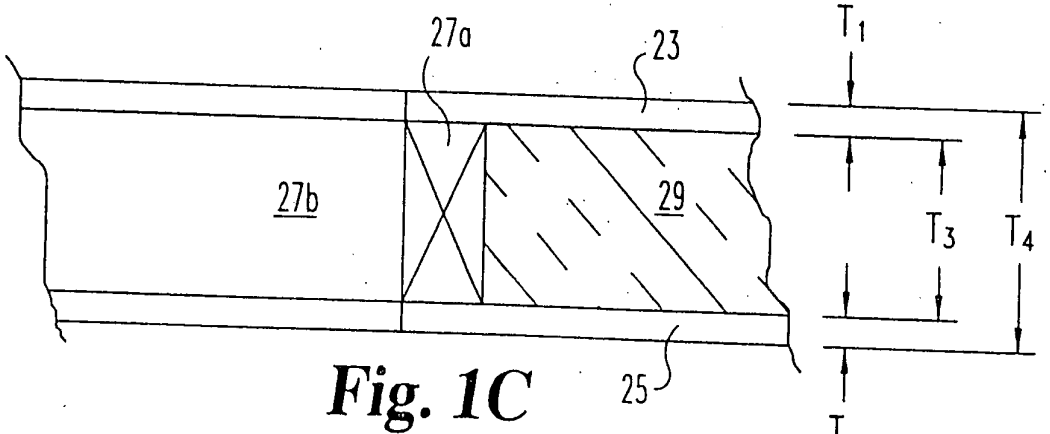

Fig. 1C

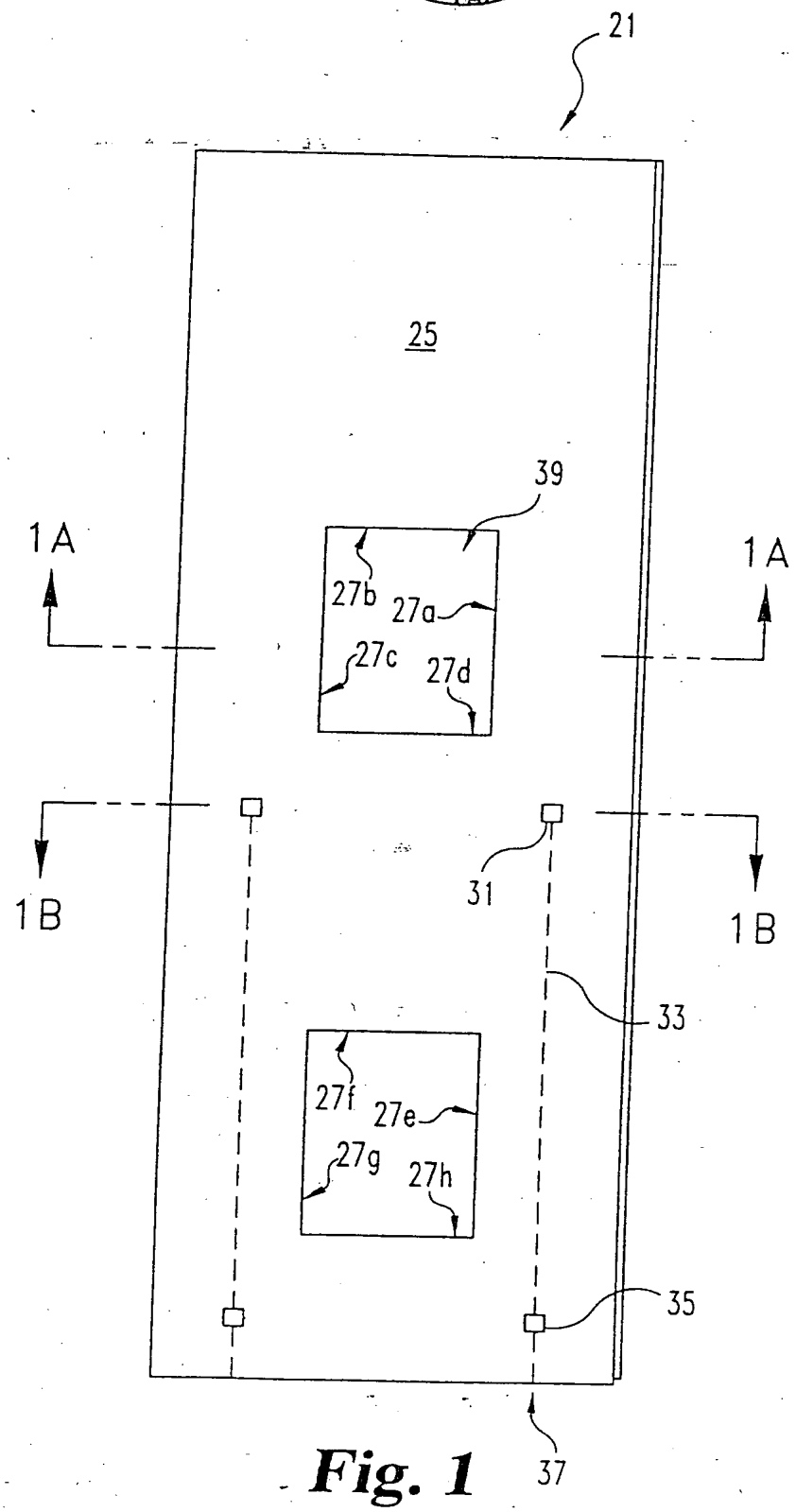

Fig. 1

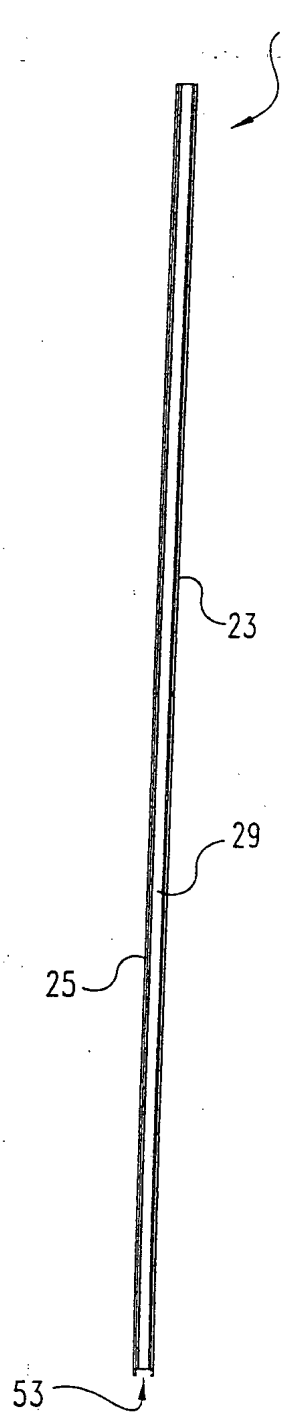

Fig. 2

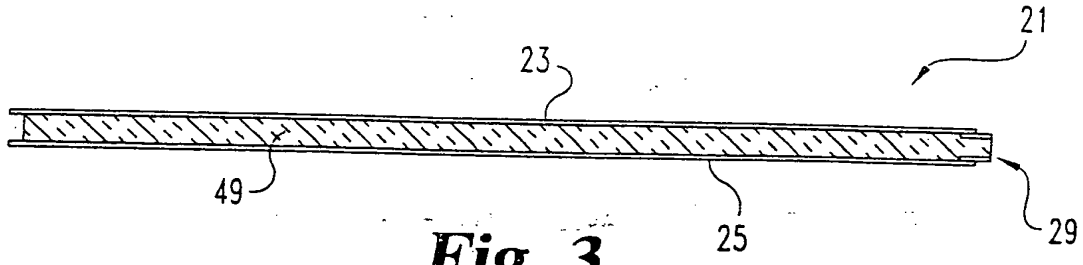

Fig. 3

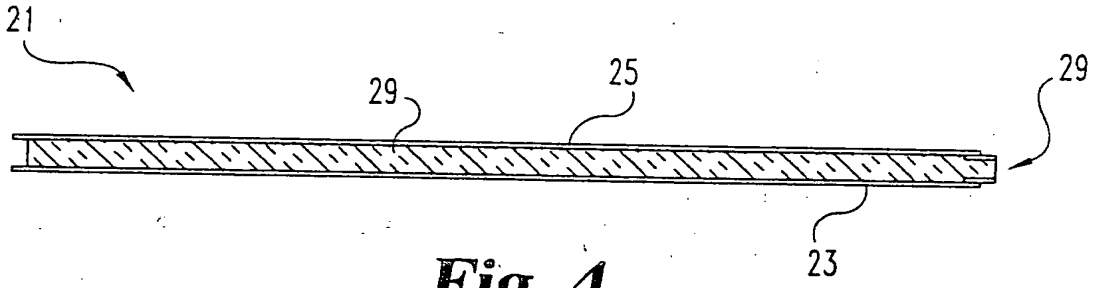

Fig. 4

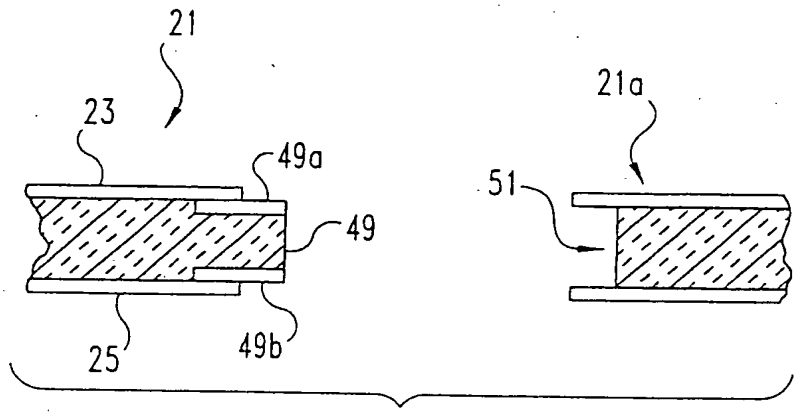

Fig. 5

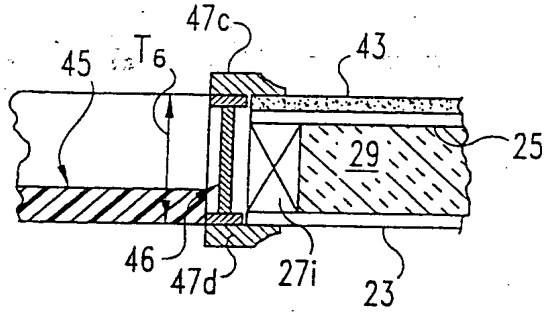

Fig. 6

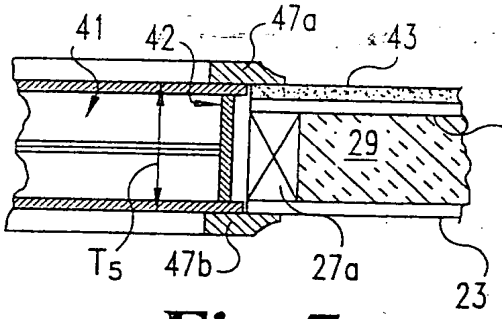

Fig. 7

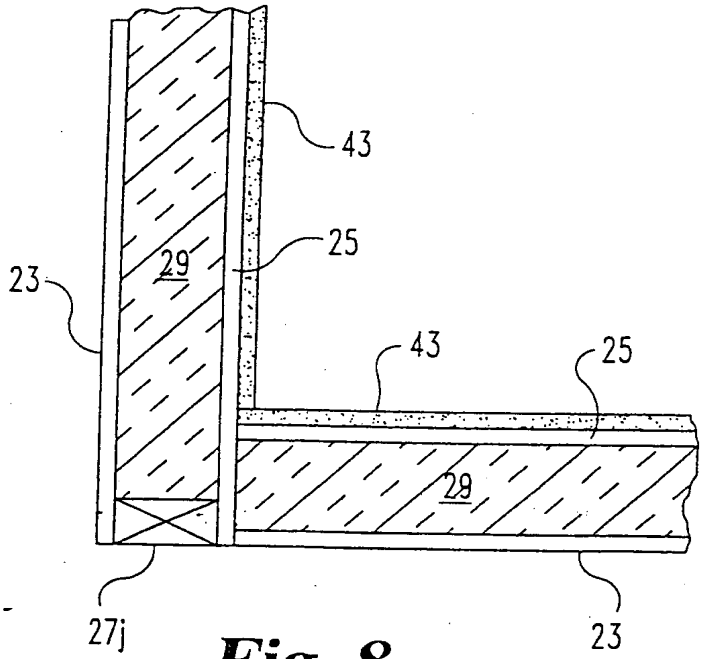

Fig. 8